# Appendix A - BMPs

# Mt. Hood Meadows Parking Improvements EIS - Best Management Practices for Water Quality Protection

BMP Title <sup>1</sup>	Objective	Explanation	Project Design Criteria (PDC)	Implementation and Responsibility	Ability to Implement	Effectiveness	Monitoring
Plan-2. Project Planning and Analysis	Use the project planning, environmental analysis, and decision making processes to incorporate water quality management BMPs into project design and implementation.	The project planning, environmental analysis, and decision making process is the framework for incorporating water quality management BMPs into project design and implementation. The process should identify likely direct, indirect, or cumulative impacts from the proposed project or management activities on soils, water quality, and riparian resources in the project area. Project documents (plans, contracts, permits, etc.) should include site-specific BMP prescriptions to meet water quality objectives as directed by the environmental analysis. Project planning should ensure that activities are consistent with land management plan direction; State BMPs, floodplain, wetland, coastal zone; and other requirements including Clean Water Act (CWA) 401 certification, CWA 402 permits, and CWA 404 permits; wilderness or wild and scenic river designations; and other Federal, State, and local rules and regulations.	Throughout the planning process and PDC A-4, A-5, A-7 through A-9	Hydrologists, fish biologists, geologists, and/or soil scientists evaluate watershed characteristics and estimate response to proposed activities. The project is designed to include site-specific prescriptions for each area of water quality concern. The subsequent contract would include provisions to meet water quality criteria and other resource protection requirements as provided by this EIS.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC	High	High based on local monitoring and experience	The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs, as described in implementation and responsibility.  This project would go into a pool of similar projects to be selected for project level BMP implementation and effectiveness monitoring as per the National BMP Monitoring Protocol. If selected, watershed and recreation specialists would evaluate whether the site-specific BMPs were implemented and the effectiveness of the BMPs.  This project would be part of annual, informal monitoring conducted by Forest Service hydrologist and soil scientist to observe BMP effectiveness and make adjustments to correct any observed deficiencies.
Plan-3. Aquatic Management Zone (AMZ) Planning	To maintain and improve or restore the condition of land around and adjacent to water bodies in the context of the environment in which they are located, recognizing their unique values and importance to water quality while implementing land and resource management activities.	The land around and adjacent to water bodies plays an important ecologic role in maintaining the structure, function, and processes of the aquatic ecosystem. These areas provide shading, soil stabilization, sediment and water filtering, large woody debris recruitment, and habitat for a diversity of plants and animals. The quality and quantity of water resources and aquatic habitats may be adversely affected by ground-disturbing activities that occur on these areas. Protection and improvement of soil, water, and vegetation are to be emphasized while managing these areas under the principles of multiple use and sustained yield. Designation of a zone encompassing these areas around and adjacent to a waterbody is a common BMP to facilitate management emphasizing aquatic and riparian-dependent resources. These management zones are known by several common terms such as streamside management area or zone, riparian management area, stream environment zone, and water influence zone. For purposes of the National Core BMPs, these areas will be referred to as AMZs. Local regulation often stipulates the area and extent of AMZs and may be listed in land management plans; biological opinions, evaluations, or assessments; and other regional or State laws, regulations, and policies.	Throughout the planning process and PDC A-4, A-5, A-14 through A-16	The AMZ requirements are identified by an interdisciplinary team during the environmental analysis. The project is designed to include site-specific BMP prescriptions for the prevention of sedimentation and other stream damage from construction and operations.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High to Moderate	High to Moderate based on literature, local monitoring and experience	Same as previous BMP.

1 - Taken from 2012 National Core BMP Technical Guide

BMP Title <sup>1</sup>	Objective	Explanation	Project Design Criteria (PDC)	Implementation and Responsibility	Ability to Implement	Effectiveness	Monitoring
AqEco-2. Operations in Aquatic Ecosystems	Avoid, minimize, or mitigate adverse impacts to water quality when working in aquatic ecosystems.	Common construction or maintenance operations in water bodies often involve ground disturbance. The close proximity to, and contact with, the water body increases the potential for introducing sediment and other pollutants that can affect water quality. This BMP includes practices for minimizing direct and indirect water quality impacts when working in or adjacent to water bodies.	PDC C-1 through C-6, C-8, C-9, A-1 through A-5, A-9 through A-12	The project is designed to include site-specific prescriptions for each area of water quality concern. The subsequent contract would include provisions to meet water quality criteria and other resource protection requirements as provided by this EIS.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High to Moderate	High to Moderate based on literature, local monitoring and experience	Same as previous BMP.
AqEco-3. Ponds and Wetlands	objectives and avoids, minimizes, or mitigates adverse effects to soil,	Ponds and wetlands are developed for a variety of reasons including recreation, water sources, stock ponds, gravel extraction, wetland mitigation, and wildlife improvement. The excavation of material and construction of berms, dikes, dams, channels, wildlife water sources, and waterfowl nesting islands have the potential to introduce sediment and other pollutants into adjacent waterbodies, alter flows, and cause physical damage to the ponds and adjacent stream channels both during and after construction. Constructing the projects to withstand potential overflow and flooding is a primary consideration during project planning and design.	PDC C-1 through C-6, C-8 & C-9, C-13 through C-16, A-1 through A-5, A-9 through A-12, A-17	The project is designed to include site-specific prescriptions for each area of water quality concern. The subsequent contract would include provisions to meet water quality criteria and other resource protection requirements as provided by this EIS.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High to Moderate	High to Moderate based on literature, local monitoring and experience	Same as previous BMP.
Rec-2. Developed Recreation Sites	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources at developed recreation sites by maintaining desired levels of ground cover, limiting soil compaction, and minimizing pollutants entering water bodies.	Developed recreation sites provide amenities for user comfort and can be located in motorized or non-motorized settings. Often times these areas concentrate high volumes of use into relatively small areas and may be located on or near water bodies, thereby increasing the potential for water quality degradation. Potential pollutants generated by use at developed recreation sites include, but are not limited to, human and animal waste; solid wastes (trash); petroleum products; and other hazardous substances. In addition, continuous or recurring use at one site can cause excessive soil compaction; damage to vegetation, wetlands, and riparian areas; and erosion and sediment transport from the site.	PDC C-1 through C-6, C-13 through C-16, A-16	The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on a regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High based on literature, local monitoring and experience	Same as previous BMP.

BMP Title <sup>1</sup>	Objective	Explanation	Project Design Criteria (PDC)	Implementation and Responsibility	Ability to Implement	Effectiveness	Monitoring
Rec-4. Motorized and Non-motorized Trails	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources by controlling soil erosion, erosion of trail surface materials, and water quality problems originating from construction, maintenance, and use of motorized and nonmotorized trails.	Trail construction, maintenance, and use by motorized vehicles and human or stock traffic can adversely affect water quality by increased sediment delivery and contamination from vehicle fluids and human and animal wastes to nearby water bodies. Compaction of the trail surface limits water infiltration, which can lead to concentrated runoff on the trail surface. Concentrated runoff on trails lacking adequate drainage causes erosion of the trail surface and can transport sediment and other pollutants directly into water bodies if not filtered. Heavy tread, foot, or hoof traffic can loosen some trail surface materials, making them more susceptible to erosion.	PDC A-7	Hydrologists, geologists, and soil scientists evaluate watershed characteristics and estimate response to proposed activities. These professionals would assist in layout of trails in complex areas.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on a regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High based on local monitoring and experience	Same as previous BMP.
Rec-10. Ski Runs and Lifts	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources during the construction, operation, and maintenance of ski runs and lifts.	A ski area and its operation are complex and can result in a variety of adverse effects to soil, water quality, and riparian resources. These adverse effects can be particularly true for ski runs and lifts. Because good ski runs tend to be steep, extra precautions are needed to avoid or minimize accelerated erosion and resulting sedimentation. Ski run clearing, slope grading, and developing access routes, ski lift and towline facilities, and similar actions can expose and compact soils, resulting in accelerated runoff and erosion. Increased runoff can alter water yield and runoff regimes, augment peak flows, and increase instream sediment from channel erosion. Appropriate soil and water protection measures should be included in the ski area's operation and maintenance plan.	PDC A-7	Hydrologists, geologists, and soil scientists evaluate watershed characteristics and estimate response to proposed activities. These professionals would assist in layout of trails in complex areas.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on a regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High based on local monitoring and experience	Same as previous BMP.
Rec-12. Ski Area Facilities	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources originating from design, construction, operation, and maintenance of ski area facilities.	Ski area facilities include buildings, sanitary facilities, parking lots, and other infrastructure. During construction and operation of facility sites, land may be cleared of existing vegetation and ground cover, exposing mineral soil that may be more easily eroded by water, wind, and gravity. Changes in land use and impervious surfaces can alter temporarily or permanently storm water runoff that, if left uncontrolled, can affect morphology, stability, and quality of nearby streams and other water bodies. Receiving waters can be contaminated by oil, grease, anti-freeze, sewage, trash, sediment, and salt. Construction and operation of these facilities should include measures that will avoid, minimize, or mitigate effects to water quality.	PDC C-13 through C-16, A-12, A-13, A-15, A16	The project is designed to include site-specific prescriptions for each area of water quality concern. The subsequent contract and/or annual operating plan would include provisions to meet water quality criteria and other resource protection requirements as provided by this EIS.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High to Moderate	High to Moderate based on literature, local monitoring and experience	Same as previous BMP.

BMP Title <sup>1</sup>	Objective	Explanation	Project Design Criteria (PDC)	Implementation and Responsibility	Ability to Implement	Effectiveness	Monitoring
Road-7. Stream Crossings	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing, reconstructing, or maintaining temporary and permanent water body crossings.	Crossings should be designed and installed to provide for flow of water, bedload, and large woody debris, desired aquatic organism passage, and to minimize disturbance to the surface and shallow groundwater resources. Construction, reconstruction, and maintenance of a crossing usually requires heavy equipment to be in and near streams, lakes, and other aquatic habitats to install or remove culverts, fords, and bridges, and their associated fills, abutments, piles, and cribbing. Such disturbance near the water body can increase the potential for accelerated erosion and sedimentation by altering flow paths and destabilizing stream banks or shorelines, removing vegetation and ground cover, and exposing or compacting the soil. Use of heavy equipment has a potential for contaminating the surface water from vehicle fluids or introducing aquatic nuisance species.	PDC A-12	Hydrologists, geologists, and soil scientists evaluate watershed characteristics and estimate response to proposed activities. These professionals would assist in layout of any stream crossings in complex areas.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	Moderate	High based on literature, local monitoring and experience	Same as previous BMP.
Road-8. Snow Removal and Storage	Avoid or minimize erosion, sedimentation, and chemical pollution that may result from snow removal and storage activities.	Snow removal from roads and parking areas may adversely affect water quality and riparian resources in several ways. Plowing may physically displace native or engineered surfaces on roads, damage drainage structures, or alter drainage patterns. Plowing may also remove protective soil cover (e.g., vegetation or mulch). These changes can result in concentrated flow, increased erosion, and greater risk of sediment delivery to water bodies. Snow piled in large mounds or berms, or in sensitive areas, may contribute to increased run-off, hill slope erosion, mass slope instability, and in-channel erosion from snowmelt. Snow stored in riparian areas and floodplains may compact soils, break or stunt vegetation, or channel runoff in undesirable patterns, thereby weakening the buffering capacity of these areas. Additionally, both snow removal and storage may result in additions of salts or fine aggregates used for de-icing or traction control and other vehicle pollutants directly to surface water and indirectly to both surface water and groundwater during runoff.	PDC A-15	The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	Moderate based on literature, local monitoring and experience	Same as previous BMP.
Road-9. Parking and Staging Areas	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources when constructing and maintaining parking and staging areas.	Parking and staging areas on NFS lands may be permanent or temporary and are associated with a variety of uses including administrative buildings, developed recreation sites, trailheads, and forest management projects. These parking facilities sometimes constitute large areas with little or no infiltration capacity. Runoff from these areas can create rills or gullies and carry sediment, nutrients, and other pollutants to nearby surface waters.	PDC C-1, C-3 through C-6, C-8, A-1 through A-4, A-10, A-11, A-14 through A-16	Hydrologists, geologists, and soil scientists evaluate watershed characteristics and estimate response to proposed activities. These professionals would assist in layout of project elements in complex areas.  The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High to Moderate based on literature, local monitoring and experience	Same as previous BMP.

BMP Title <sup>1</sup>	Objective	Explanation	Project Design Criteria (PDC)	Implementation and Responsibility	Ability to Implement	Effectiveness	Monitoring
Road-10. Equipment Refueling and Servicing	Avoid or minimize adverse effects to soil, water quality, and riparian resources from fuels, lubricants, cleaners, and other harmful materials discharging into nearby surface waters or infiltrating through soils to contaminate groundwater resources during equipment refueling and servicing activities.	Many activities require the use and maintenance of petroleum-powered equipment in the field. For example, mechanical vegetation management activities may employ equipment that uses or contains gasoline, diesel, oil, grease, hydraulic fluids, antifreeze, coolants, cleaning agents, and pesticides. These petroleum and chemical products may pose a risk to contaminating soils, surface water, and groundwater during refueling and servicing the equipment. BMP Fac-6 (Hazardous Materials) provides additional guidance for handling hazardous materials.	PDC C-13 through C-16, A-16	The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High based on literature, local monitoring and experience	Same as previous BMP.
Veg-6. Landings	Avoid, minimize, or mitigate adverse effects to soil, water quality, and riparian resources from the construction and use of log landings.	Log landings, in general, are the site of intense activity, serving as the endpoint of yarding operations, the setup location of large equipment (such as skyline yarders), loading areas for log trucks, and fueling and maintenance locations for heavy equipment. To accommodate all this activity, landings tend to be large, and their soils generally become compacted, rutted, and disturbed much more than the rest of the project area. Thus, landings have a high probability of being a source of concentrated overland flow containing sediment and other pollutants.	PDC A-6	The Forest Service Permit Administrator or his/her designee would monitor the implementation of the PDCs during construction and operations on regular basis and would have the authority to provide direction and/or take action if construction or operations are not conducted according to the PDC.	High	High based on literature, local monitoring and experience	Same as previous BMP.

# Mt. Hood Land and Resource Management Plan (Forest Plan) Direction

Appendix H of the Forest Plan defines the criteria for Rating "Ability to Implement" and BMPs "Effectiveness" on page H-6. These estimates are general, given the range of conditions throughout the Forest. More specific estimates are made at the project level when the specific BMPs are developed.

#### Ability to implement

Provides a qualitative estimate of the ability of the Forest Service to implement the BMPs. The following index is used to rate the ability to implement as High, Moderate or Low:

- **High:** Almost certain the BMPs can be implemented as planned.
- **Moderate**: Greater than 75% certainty the BMPs can be implemented as planned.
- Low: Less than 75% certainty the BMPs can be implemented as planned.

#### Effectiveness

Provides a qualitative assessment of the expected effectiveness that the applied measure would have on preventing or reducing impacts on water quality and beneficial uses. The effectiveness of each BMPs would be evaluated with an index that rates the effectiveness of each BMPs as either High, Moderate, or Low.

- **High**: Practice is highly effective (90%) and one or more of the following types of documentation are available:
  - ▶ Literature/Research must be applicable to area.
  - ▶ Administrative studies-local or within similar ecosystem.
  - ▶ Experience- judgment of an expert by education and/or experience.
  - ▶ Fact-obvious by reasoned (logical) response.
- **Moderate**: Documentation shows that the practice is effective less than 90% of the time, but at least 75% of the time; or logic indicates that this practice is highly effective, but there is little or no documentation to back it up.
- Low: Effectiveness unknown or unverified, and there is little or no documentation; or applied logic is uncertain in this case, or the practice is estimated to be less than 75% effective.

Effectiveness of BMPs are based on guidance from the National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1: National Core BMP Technical Guide (USDA, 2012), models, literature, research, 25 years of planning and monitoring implementation of projects on National Forest Lands in the Northwest, 12 years of planning and monitoring implementation of projects at the Mt. Hood Meadows Ski Area and other professional experience.

#### Models:

Water Erosion Prediction Project (WEPP) (USDA Forest Service, 1999).

### Other Applicable BMP Software:

• Erosion Draw 4.0 (Erosion Control Standards and Construction Drawings – Salix Applied Earthcare, 2002)

# Relevant research includes:

- Effectiveness Of Timber Harvest Practices For Controlling Sediment Related Water Quality Impacts (Rashin et. al. 2006).
- Sediment Trapping by Streamside Management Zones of Various Widths after Forest Harvest and Site Preparation (Lakel and others, 2010).
- Reduction of soil erosion on forest roads (Burroughs and King, 1989).
- Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act (Environmental Protection Agency, 2009)

# **Monitoring Includes:**

- Administrative BMP Monitoring Studies, Mt. Hood National Forest: Various administrative monitoring studies were planned and implemented from 1997 through 2004. Monitoring for BMP implementation and effectiveness was performed on a wide variety of BMPs, ranging from riparian reserve protection to temporary road construction. Monitoring results are summarized in the Forest Plan Monitoring and Evaluation Reports for Fiscal Years 1997 through 2004. BMP monitoring completed during this period indicates that overall the BMPs monitored were prescribed and implemented as planned, resulting in adequate soil and water protection in most instances.
- Best Management Practices Evaluation Program (BMPEP), 1992-2002 Monitoring Results (Draft Report). USDA Forest Service, Pacific Southwest Region, Pacific Southwest Region. This draft report summarizes the results of the USDA Forest Service, Pacific Southwest Region, Best Management Practices Evaluation Program (BMPEP), from 1992 to 2002. Past monitoring completed as part of the BMPEP program has validated the effectiveness of BMPs in mitigating the effects of forest management activities on water quality.
- Monitoring done during the Mount Hood National Forest administrative studies cited generally correlates well with the extensive monitoring done during the BMPEP monitoring program in the Pacific Southwest Region.

# <u>Professional Experience</u>

A small group of local professionals further refined assignments of "Ability to Implement" and "Effectiveness" ratings for Mt. Hood Meadows Parking Improvements EIS PDC and BMP based on experience. This group consisted of a Soil Scientist with over 25 years of professional experience in planning, monitoring and implementation of a variety of Forest Service projects in the Pacific Northwest, a Fisheries Biologist with over 23 years of professional experience in planning, monitoring and implementation of a variety of Forest Ser-

vice projects in the Pacific Northwest and a Hydrologist with over 25 years of professional experience in planning, monitoring and implementation of a variety of Forest Service projects in the Pacific Northwest.

# References

Burroughs, E.R., Jr., John G. King. 1989. Reduction of soil erosion on forest roads. General Technical Report INT-264. USDA Forest Service, Intermountain Research Station. Ogden, Utah. 21pp.

Elliot, William J.; Hall, David E. 2010. Disturbed WEPP Model 2.0. Ver. 2011.11.22. Moscow, ID: U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. Online at <a href="http://forest.moscowfsl.wsu.edu/fswepp">http://forest.moscowfsl.wsu.edu/fswepp</a>.

Lakel, William A. III, Wallace M. Aust, M. Chad Bolding, C. Andrew Dolloff, Patrick Keyser, Robert Feldt. 2010. Sediment Trapping by Streamside Management Zones of Various Widths after Forest Harvest and Site Preparation. Forest Science

Rashin, E. B., C. J. Clishe, A. T. Loch, J. M Bell. 2006. Effectiveness of Timber Harvest Practices for Controlling Sediment Related Water Quality Impacts. Journal- American Water Resources Association, Vol. 42 (5): 1307-1328

Salix Applied Earthcare, 2002. Erosion Draw 4.0 Software

USEPA, 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act United States Forest Service (USFS). 2004. Best Management Practices evaluation program: 1992-2002 monitoring results.

USDA Forest Service Pacific Southwest Region. November 2004. Vallejo, CA. 76 p. plus Appendices.

# Appendix B - Response to Comments

# **Appendix B: Response to Comments**

The objective of this section is to display the public comments received by the Forest Service regarding the Mt. Hood Meadows Parking Improvements Draft Environmental Impact Statement (DEIS), and to provide responses to those comments. The comments were used to update and finalize the analysis in the Final EIS, and to help the Responsible Official select an alternative.

### **Comment Period**

The DEIS was released to the public on May 3, 2013. A Notice of Availability (NOA) announcing the comment period was published in the Federal Register (Vol. 78, No. 86) on May 3, 2013. A legal notice announcing the availability of the Mt. Hood Meadows Parking Lot Improvements Draft Environmental Impact Statement for review and comment was published in *The Oregonian* (newspaper of record) on May 4, 2013. The 45-day comment period ended on June 17, 2013. Sixteen individuals and organizations submitted written comments within the comment period. The comments were received from individuals, Pacific Northwest Ski Areas Association, Oregon Department of Transportation, Crag Law Center, Friends of Mount Hood, Oregon Wild, Oregon Nordic Club, Confederated Tribes of Warm Springs, and U.S. Environmental Protection Agency.

# **Process of Considering and Responding to Comments**

Consistent with the National Environmental Policy Act, 40 CFR 1503.4, this document addresses substantive comments on the DEIS. Substantive comments include those which challenge the information in the DEIS as being inaccurate or inadequate, or which offer specific information that may have a bearing on the decision. Non-substantive comments are those that express opinions without any accompanying factual basis or rationale to support the opinion these comments are maintained in the project file in the Mt. Hood National Forest Headquarters in Sandy, Oregon. Similarly, position statements and votes were considered non-substantive.

Substantive comments were responded to as outlined in the USDA Forest Service Handbook (FSH), which states that the agency preparing the FEIS must "review, analyze, and respond to substantive comments on the draft EIS" (FSH 1909.15). Possible responses to substantive comments may include:

- 1. Modify alternatives, including the Proposed Action
- 2. Develop and evaluate alternatives not previously given serious consideration by the agency;
- 3. Supplement, improve, or modify its analyses;
- 4. Make factual corrections; and/or,
- 5. Explain why the comments do not warrant further agency response, citing the sources, authorities, or reasons which support the agency's position, and, if appropriate, indicate those circumstances which would trigger agency reappraisal or further response.

Each letter of comment was given a unique identification number (shown in the first column on the following table), and the sender was added to the mailing list for the FEIS and ROD (if they were not already on the list). Comments within each letter were then assigned a unique identifying code. Each comment was assigned to a subject matter expert for a detailed response. All comments and responses are part of the project record for this EIS, and were considered during the decision-making process.

# **Agency Comments**

Appendix C contains comment letters received from government agencies, and are located. The letters are included in their entirety in this section per FSH 1909.15. The responses to the substantive comments identified in these letters are contained in the Response to Comments as indicated below.

- Oregon Department of Transportation, Letter #5
- U.S. Department of Interior, Office of Secretary, Letter #9
- Confederated Tribes of Warm Springs, Letter #16
- U.S. Environmental Protection Agency, Region 10, Letter #17

Comment Number	Comment	Response
1-1	As a nordic skier, I am disappointed at the trails that are being offered to replace the trails being lost to parkingthe new trails are lower in elevation and that Beargrass Loop area sometimes doesn't open due to lack of snowMORE IMPORTANTLYwe would be losing flat trails(good for beginners and teaching) and gaining steeper trails, not a tit-for-tat situation at allthe original "option 3 trails" showed new trails in the area between Twilight and the old nordic centerI feel these trail would be a fair and reasonable replacement for the trails lost	The Preferred Alternative (Alternative 6) includes the same replacement Nordic ski trails as Alternative 3 ("option 3 trails"). There was an error in the description of the connected action in the DEIS that was corrected. FEIS, Section 2.2.6 now states: "The proposed Twilight Parking Lot would remove approximately a half mile (or 2,746 feet) of Nordic ski trails from the Hanel and Little Loops. The trails constructed as a connected action are the same as Alternative 3 as shown in Figure 2-2. This includes approximately 0.7 mile (or 3,432 feet) miles of new Nordic ski trails, resulting in a net increase of 0.1 mile (or 686 feet)."
3-1	As the population continues to grow in the Portland metropolitan region the current parking configuration at MHM will be inadequate to meet the weekend/holiday demand. As a result more visitors will be turned away from the resort, likely on a more frequent basis, due to the limited parking capacity.	During the peak use days, generally occurring on holidays and weekends, all three of the existing parking lots are near capacity and/or reach their maximum capacity. In the event that the parking areas reach maximum capacity users are turned away. If the Preferred Alternative (Alternative 6) is implemented and visitation to Mt. Hood Meadows Ski Resort (MHM) continues to increase as it has over the past ten years (approximately 3.4 percent per year), than the Forest Service may begin to see peak-use days reach maximum capacity of the proposed parking area in an estimated 10 to 15 years. The demand on peak days under the existing conditions and in each of the action alternatives was fully analyzed in the FEIS, Section 3.1.
3-2	Turning guests eager to recreate not only creates greatly disappointed visitors who have traveled a long distance to ski/ride, it presents significant safety concerns. These issues spill over on to Highway 35 creating significant traffic jams and problems for ODOT snow removal crews. The proposed parking improvements in the DEIS will meaningfully reduce these issues creating a much improved visitor experience.	When parking facilities reach capacity (peak use days), all additional recreational visitors would be directed away from the developed parking areas at MHM. These visitors may continue to attempt to find additional parking in other less desirable and potentially dangerous locations (such as alongside Highway 35 or FS Road 3545). Also, the already fully utilized parking at Teacup Lake Nordic Trail system could continue to receive additional pressure from recreational traffic attempting to access facilities at MHM. They may also travel to a different location on the Forest to access similar recreational opportunities (other ski resorts) or they may leave the National Forest. The demand on peak days and associated impacts to skiers was fully analyzed in the FEIS, Section 3.1.
3-3	Users of the close by Sno-Park areas, such as Teacup, will also benefit from increased MHM parking capacity as their guests will be less likely to attempt to park in these lots when the MHM lots are full.	See response to Comment #3-2.
3-4	Addition of a left turn lane from Highway 35 to the MHM access road will alleviate blockage of through traffic and the risk of rear-end accidents. This is a significant benefit to all users of Highway 35.	A right- and left-lane are required components of all action alternatives. Traffic safety could also be improved due to the lane separation of turning vehicles and through traffic. However, the improvement of traffic operations is only expected to improve at this local intersection and would only have a minimal positive effect on through traffic. The impacts of the left- and right-turn lanes from Highway 35 on traffic safety are fully analyzed in the FEIS, Section 3.2.
3-5	Reduced guest /heavy equipment interaction due to the relocation of the vehicle maintenance facility by isolating heavy equipment movement from resort visitors using the parking lots.	The existing maintenance facilities are co-located in the Mt Hood Meadows Main Parking Lot. These facilities, built in 1967, are not large enough to service the number and size of the snow cat, snowmobile, truck, and bus fleet. As a result, the industrial buses are parked and serviced outside the maintenance facilities. Combining the industrial bus parking and vehicle maintenance functions with the public areas at the Main Parking Lot presents safety concerns related to traffic flow and the maintenance activities outside the facilities. All of the action alternatives address this need by moving the maintenance facilities away from the Main Parking Lot to different locations within the Permit Area.
3-6	Access to the north side of the resort for the swing shift grooming crews thus physically separating movement of snowcats from the skiing/riding guests without having to close the base area downhill trails.	Under the Preferred Alternative (Alternative 6), the maintenance facilities are moved to the north side of the existing Sunrise Parking Lot and a bus shop is added near the proposed Twilight Parking Lot. Both maintenance facilities including parking for snow equipment and maintenance shops. The primary maintenance would take place at the new Sunrise Maintenance Shop. See response to Comment 3-5 for more information.
3-7	The existing facilities are obsolete which compromises safe operations and is inadequate for servicing MHM heavy equipment including snowcats, buses and front end loaders. Given the current situation often maintenance work is done outside in front of the facility where the potential for harmful spills and leaks to occur exists.	See response to Comment #3-5.
3-8	Additionally the current facility location is subject to periodic flooding during snowmelt cycles also raising the potential for surface water contamination.	According to Mt. Hood Meadows staff: "The current shop does flood at least once a year during spring runoff and large rain on snow events. It's difficult to quantify how much, the water runs out the service bay door so it doesn't get deep" (Warila, 2013). Given that condition, moving the maintenance facility to a new location that includes stormwater runoff treatment (all action alternatives) will improve existing conditions for water quality. This is based on the assumption that water currently flowing through the shop during these events is collecting pollutants and ultimately depositing them in adjacent surface and/or groundwater. No monitoring of this situation has occurred to support this assumption, but it is reasonable based on personal observations of the site and the proximity of the facility to the East Fork Hood River.

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3-9	Alternative 6 proposed locations for the maintenance shop and parking lots have smaller impact compared to the previously selected locations indicated in the MHM 1997 Record of Decision Master Plan. The locations in that plan were within a riparian reserve of a large wetland. Further, the site preparation would require excavation and back filling would be up to the edge of this wetland.	The impacts of each action alternative to riparian reserves, including the previously selected location (Alternative 4) are fully analyzed in FEIS, Section 3.4. All action alternatives would have some disturbance in the Riparian Reserves. Disturbance in the Riparian Reserves associated with the new Sunrise Vehicle Maintenance Shop in Alternative 3 has some risk of increasing water temperature, sediment and chemical contaminants due to the close proximity to a wetland/stream and complete removal of approximately 400 linear feet of riparian vegetation. Alternative 2 has risk of increased sedimentation due to snow removal limitations in the Sunrise Parking Lot footprint posed by the new Sunrise Vehicle Maintenance Shop. All of the above effects are anticipated to be localized and most likely only noticeable at the site scale.
4-1	Enclosed, is a map proposing a compromise between my original 8/6/11 alternative and the one presented in the DEIS (2-25). It is the same size, but south, adjacent to the existing state shed and the proposed equipment maintenance yard. I have merged them for several reasons: (1) Rock Spray: It facilitates plowing and concentrates rock spray issues. From my experience, it takes a lot of trees to buffer the effects of rock spray. (For example on the Meadows Creek trail.) Small islands and peninsulas of trees will do little for visual quality and horologic recovery. When the ground is not snow-covered, there will be lots of gravel that has accumulated that can't be swept up and re-located. (2) Scenic Quality: The State shed area is already a visual impact from the perspective of the ski trail. By moving the paved areas together and south, it moves skiable parts of the Beargrass loop away from the state shed. (3) Ski Trail Design: A small section of Hannel loop can be retained (to the intersection) reducing the need for one of the tiny connector trails and pulls the parking lot, and hopefully rock spray, away from ski trails. (4) Paved Area Management: Mounds of snow and the "Parking Lot Ditch Outlet" (Cha 1-14) can be used to create a separation of uses with in the paved area. If some day ODOT needs to relocate (vacate) or expand their gravel storage, there would be more fluidity to adjust usage boundaries. (5) Avoids Riparian Areas: It is not in a riparian area. The map I used to make my original proposal was outside of the Clark Creek Riparian Reserve. Apparently, this boundary was revised or somehow in error.	The Preferred Alternative (Alternative 6) is located as close to the Oregon Department of Transportation (ODOT) maintenance yard as possible given the design requirements of including all components of the action alternatives and connected actions (Twilight Parking Lot, Twilight Bus Shop, access roads, snow management and snow removal). Specifically, moving the parking lot closer to the ODOT gravel shed would compromise the storm water management system and potentially could overlap with the existing uses at the ODOT maintenance yard (see FEIS, Figure 1-3). Alternatives 4 and 5 were designed to address the comments from the Nordic ski community. Alternatives 4 and 5 change the location of the proposed Twilight Parking Lot to between the Elk Meadows trailhead and existing Nordic ski trails, as recommended by this alternative. As a result of changing locations, Alternative 4 does not impact any of the existing Nordic ski trails and Alternative 5 only impacts iles of the East Access trail. The impacted trails in Alternative 5 would be relocated and the recreational experience would be duplicated. For all action alternatives, the impacts to the existing Nordic ski trails were addressed through the Nordic ski trail connected action (see response to Comment #1-1). Lastly, the impacts of rock spray (FEIS, Section 3.1), scenic quality (FEIS, Section 3.11), Nordic ski operations (FEIS, Section 3.1), and aquatic resources including Riparian Reserves (FEIS, Sections 3.4 and 3.5) are fully analyzed and disclosed in the FEIS, Chapter 3. For more information, see response to Comment #15-1.
4-2	Connector Trails: Add connector trails (A-D) up to the MHM permit boundary to some day connect to the Forest Service (FS) 645 trail to the NE that parallels Clark Creek. There is no hurry to construct them now, but during this planning phase, you may as well analyze the effects and add them into the mix in the event that connector trails from the FS side of the permit boundary could be added at a later time with a CE.	Adding connector trails is outside the scope of this project. FEIS, Section 1.3 defines the Purpose and Need for Action for this project as: "The primary purpose of this project is to serve the design capacity for parking, including area for snow storage, and maintenance facilities that was conceptually approved while minimizing environmental impacts from parking lot construction and maintenance, as was outlined in the Master Plan in 1997."
4-3	FSR 3545 Crossing: Address the safety and user experience of having to cross FSR 3545 long term. I know that this is not the purpose of the analysis, but it certainly is a connected action. Especially since the road has been used at times as a parking lot. A bridge or tunnel, for example, would be appropriate to at least discuss in the EIS since one of the Desired Future Conditions identified in the DEIS is to provide for high quality winter recreation activities (DEIS 1-11). Having to take your skies off and cross an icy, graveled 2 lane road with XC ski boots on is not a quality experience. Other Nordic centers have tunnels and bridges for crossing roads.	First, the project does include several connected actions. Actions are connected if they: (i) automatically trigger other actions which may require environmental impact statements; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) are interdependent parts of a larger action and depend on the larger action for their justification. For this project, the connected action is the impact to Nordic ski trails for the action alternatives were the proposed parking lot overlaps with the existing trails. The connected action addresses replacing this trails, rather than upgrading the Nordic ski trail system given the Purpose and Need for Action. Second, the FEIS does include the Desired Future Condition to provide "high quality winter recreation activities" by providing additional parking capacity. See response to Comment 4-2 for more information.
4-4	Undulating Terrain: Add more undulating terrain to the "Preferred Alternative #6" in the area within the triangle created by the Hanel Loop, Raven Way and Stump Lane trails, similar to the Little Loop trail that will be covered by the parking lot. This would be an appropriate concession to the atrocity that the parking lot will create. Adding undulating trails to this area will add more intermediate and beginner trails to the system.	In the Preferred Alternative (Alternative 6), the proposed Twilight Parking Lot would remove approximately a half mile (or 2,746 feet) of Nordic ski trails from the Hanel and Little Loops. The trails constructed as a connected action are the same as Alternative 3 as shown in Figure 2-2. This includes approximately 0.7 mile (or 3,432 feet) miles of new Nordic ski trails, resulting in a net increase of 0.1 mile (or 686 feet). While the location of trails would be moved from their current location, the Nordic skier experience of traversing over undulating terrain would remain the same. The easiest trail would decrease from 25 to 19 percent and the intermediate trails would increase from 70 to 76 percent of the impacted trails. The impacts to the Nordic ski operations are fully analyzed and disclosed in the FEIS, Section 3.1.
4-5	Trail Repair: Reserve logs from the parking lot construction specifically for trail maintenance needs. For example, I have noted several times the need to get a small section of the West Access Trail (the one from HRM ticket office to the meadow) up out of the water. When this trail is interrupted by water flow, it reduces the amount of kilometers available to ski on, and blocks the option to get from one side of the nordic area to the other with out having to cross 3545. I did not see that this was addressed in this DEIS, nor in the 2013 Trail Maintenance CE	See response to Comments #4-2 and #4-3.

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4-6	From the alternative description, I am uncertain if the "Nordic Guests Services Building" will be in the western corner of the lot and what the green oval thing with yellow and black tails is. Is that a beginners circle for classes? A race staging area? Is that a good location to have it, if that is what it is, in between the lodge and the parking lot, which we know from experience, will have rock spew issues? Maybe behind the lodge, away from the parking lot would be a better location. Also, it is is unclear from the map and the description, if the utilities line will continue to be groomed and available to nordic skiers to access the west side of the trail system with out having to take skies off and cross FSR 3555, the access road to HRM (2-5).	The Nordic Guest Services Building is labeled on FEIS, Figure 1-3 which is a map of the preferring location of the parking lot including the connected actions. The services to be included are: bathrooms, lockers, food and beverage services, guest seating, Nordic equipment rental, and a covered bus stop. The green circle is the bus shop, indicating the turning radius needed for the buses. The blue shaded areas are the new Nordic ski trails. The larger blue area immediately above the Nordic ski center could be used as a beginners circle for classes or race staging area. Nordic ski operations, including skier experience, are fully analyzed and disclosed in FEIS, Section 3.1.
4-7	Also, it is is unclear from the map and the description, if the utilities line will continue to be groomed and available to nordic skiers to access the west side of the trail system with out having to take skies off and cross FSR 3555, the access road to HRM (2-5).	Yes, the existing utility lines will continued to be groomed and available to Nordic skiers; however, the existing utility lines do not cross Forest Service Road 3555. Nordic ski operations, including skier experience, are fully analyzed and disclosed in FEIS, Section 3.1.
4-8	The Draft EIS notes that the "Nordic Guest Services Building" will provide equipment rentals. Will it still provide Nordic ski lessons and host Nordic ski races (chapter 2-page 5)? If lessons and races will no longer be provided for Nordic skiers, the EIS should address these connected actions affected by the change in use of the new building and how that might affect other Nordic centers on Mt. Hood. Will there be more employees to satisfy the variety of needs and demands of the additional types of customers using the facility?	This project does not change any of the existing services provided by the Mt. Hood Meadows Ski Resort. Implementation of the Preferred Alternative (Alternative 6) as well as the services provided are addressed through implementation of the Special Use Permit and Annual Operating Plan.
4-9	The suggestion to provide a Dog friendly loop or out-and-back trail was not addressed.	Developing additional Nordic ski trails or changing the uses on the trails is outside the scope of this project based on the Purpose and Need for Action for this project. See response to Comment 4-2 for more information.
4-10	The proposal does not say how Alpine skiers will be kept out of the Nordic system in the event that some will try to ski or snow board all the way to the Twilight parking lot from the downhill area. They will try; the terrain would be quite tempting.	See response to Comment #4-8.
4-11	Chapter 2-27: R-3. Shuttle services should not be provided from Mt. Hood Meadows Access Road (FSR 3555) Tea Cup and Bennet Pass Sno-Parks to Mt Hood Meadows Ski Resort. Replace should with will.	PDC R-3 reads: "Shuttle services shall not be provided from Mt. Hood Meadows Access Road (FSR 3555) Tea Cup and Bennet Pass Sno-Parks to Mt Hood Meadows Ski Resort" in the draft Record of Decision for this project.
4-12	Chapter 2-33 The Vegetation Management Plan should encourage annual offseason Nordic trail maintenance such as flush cutting fast growing Lodgepole pine with in the clearing limits while the saplings are small.	See response to Comments #4-2 and #4-3.
4-13	Mass Transit/Transportation Demand Management Program (Cha 2-46, 3-44): Although I am quite impressed by the number and variety of things Meadows is doing or will do to address the parking problem, "Continue to actively promote the use of Highway 35 as an alternative to Highway 26." misses the mark! The point is to reduce traffic, not redirect it! My 8/6/11 comments to follow up on possible park-and ride locations in Hood River, especially for peak days still stand. "Wal-Mart, the Hood River Inn, the Port of Hood River, and the Hood River Chamber of Commerce to see if there was a possibility of park-and-ride/shuttle parking from Hood River, near I-84 exits on peak weekends and the winter holiday." This idea should be add to the list. If this is the same as an "express shuttle" from Hood River (3-44), then it needs to be advertised better.	The Mass Transit Alternative including shuttle buses from local businesses (such as Wal-Mart, Hood River Inn, Port of Hood River and Hood River Chamber of Commerce) was considered and eliminated from detailed study as described in FEIS, Section 2.6.4. Also, the transportation demand management program is described in greater detail in FEIS, Section 3.2.5.
4-14	Chapter 3-14 Affected Environment reasonably describes the gravel issues on trails and the access issues to get to the other side of the trail system. However, it is a bit misleading to say: "Nordic skiers and Resort Instructor would have the ability to ski from the Nordic Center to the Hood River Meadows Trail (easiest) and the Sahalie Falls Road (easiest) using all terrain suitable for new skiers." and not mention that they have to take their skis off and cross an icy traffic filled road to get to these easiest trails.	Currently, novice skiers using the Sahalie Falls and Hood River Meadows trails must take off their skis and walk across the access road to obtain access. The impacts of skier experience including the removal skis are fully analyzed in FEIS, Section 3.1
4-15	Chapter 3-page 25, 26 Cumulative Effects: The closure of Clark Creek Snow Park did limit Nordic Skiing opportunities on the east side of Hwy 35. The increase in parking at MHM would help to facilitate these activities. Meadows, or this EIS would need to identify a "free" pathway to access the existing Forest Service trails to replace the ski trail access that was lost with the closure of the Snow park. I have identified some opportunities to make connections to FS trails in the future on the enclosed map.	Cumulative effects are defined as impacts that result from the incremental impact of an action, when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects must be fully analyzed and disclosed in the FEIS, as done in Section 3.1 and summarized in Table 3-13. The impacts described resulted from a past project (Highway 35 Betterment Projects) and this project would have an incremental benefit to Nordic skiers by providing additional parking for Nordic events. Also, developing additional Nordic ski trails and connections is outside the scope of this project based on the Purpose and Need for Action for this project. See response to Comments #4-2 and #4-3 for more information.
4-16	Sahalie Falls bridge stabilization could result in the temporary closure of portions of the Sahalie Falls road to Nordic skiing. After the bridge is stabilized, will Meadows resume grooming past the bridge? If so, this will increase ski trails in the easy category.	The existing operations provided by MHM, including grooming, are outside the scope of this project. The FEIS has no effect on the grooming of Sahalie Falls Road. Grooming as well as the services provided by Mt. Hood Ski Resort are addressed through implementation of the Special Use Permit and Annual Operating Plan.

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4-17	Meadows Creek Highway 35 and Teacup Roads culverts would have no know cumulative effects as the installation work would not correspond with Nordic skiing opportunities." I am not sure which culverts these are. I do know that I have crossed under Highway 35 via bridge, culvert or arch to have access between the Teacup and Meadows ski areas via the FS Meadow Trail and the FS 645 trail. There are some wonderful opportunities to enhance the connections in the future, possibly host marathon Nordic races and truly provide a high quality Nordic experience! Furthermore, the possibility of this connected action could help disperse and equalize the parking issue with out creating a safety hazard of crossing Highway 35.	See response to Comments #4-2 and #4-3.
4-18	Chapter 3-page 27 Summary of Effects by Alternative: Alternatives 2 and 3 would have the greatest adverse effects on the existing Nordic trail system (including difficulty ratings). Alternatives 4 and 5, however, would only slightly modify the existing trails; thus, any changes to the [skier experience and] difficulty ratings would be negligible. However, the aesthetics of skiing closer to more paved and plowed areas and the increased probability of skiing on more gravel covered snow make the ski experience much worse for the skier and the equipment. Seems to me that the Alpine experience on those days that the "parking lot runneth-over" would be more of a wait-in-lift-line experience.	Nordic ski operations, including skier experience, are fully analyzed and disclosed in FEIS, Section 3.1. Also, PDC R-7 reads: "In order to prevent road gravel from being deposited on the Nordic ski trails, measures should be taken such as minimize traction gravel, provide a buffer, or create snow berms" in the draft Record of Decision for this project. For more information see response to Comments #4-2, #3-2 and #6-1.
4-19	Chapter 3-page 74: Map of the alternative 3 Maintenance Shop location is in the riparian reserve and very close to the wetland. Table 3-39 shows the distance to surface water. Interesting that this site/alternative was even considered and evaluated when my original proposed site was not.	See response to Comment #4-1 regarding consolidating paved areas and impacts to Nordic ski trails, including Hanel, Little and Bear Grass ski trails. None the parking lot locations analyzed in detail overlap with existing wetlands. Several wetlands were identified within the proposed parking lot area. One of the wetlands would be removed through the construction of the proposed access road. If this alternative was analyzed in detail, the wetland would have be recreated in order to fully comply with Executive Order 11990 – Protection of Wetlands. All of the proposed parking lot locations impact Riparian Reserves, which is fully analyzed and disclosed in the FEIS, Sections 3.4 and 3.5. The impact is less than one acre and do not overlap with known debris flow depositional from Clark Creek Riparian Reserve. Field surveys by a fisheries biologist and hydrologist revealed that there was depositional activity in the proposed parking lot location. Additional details were added to explain why this alternative was eliminated from detailed study; see FEIS, Section 2.6.2 Bear Grass Loop Parking Lot Alternatives.
4-20	Chapter 3-88: I think there is a typo in the header for Table 3-49 for Alt. 6. There are 3.8 acres of disturbance in Riparian Reserves in Alt. 6 (not Alt. 4).	This error has been fixed in FEIS, Table 3-49.
4-21	Chapter 3-214 Vegetation Management-Effects Analysis: This would be a good place to add information about utilizing some of the cut trees for trail repair.	See response to Comments #4-2 and #4-3.
4-22	Chapter 3-227 Irreversible or Irretrievable Commitments of Resources: I think it would be appropriate to add the Nordic Guest Services building to the list of items that represent an essentially permanent commitment of the land.	The irreversible or irretrievable commitment of resources includes all new paved area included in the proposal (see FEIS, Tables 2-4 and 3-78 for specifics). This includes the Nordic guest service building since it is co-located with the Twilight Parking Lot. The language in the FEIS has been updated to read: "Constructing the parking lot and maintenance shop, including all the connected actions, would represent a permanent commitment of the area to an impervious paved surface, removing forested lands within the permit area. The connected actions include Twilight Parking Lot with the new Nordic guest services building, Sunrise Maintenance Building, Twilight Equipment Maintenance Yard, access roads and turn lanes."
5-1	Transportation Demand Management (TDM) Monitoring: TDM monitoring will allow the Forest Service to monitor the effectiveness of the MHM TDM Program. In addition, both the Master Plan and the Project Design Criteria (PDC) for this project require effectiveness monitoring. While the DEIS does not quantify the effectiveness of the MHM TDM Program measures listed on pages 3-44 and Table 3-25 (Section 3.2.5), ODOT recommends that future monitoring reports quantify TDM effectiveness at key intersections where the impact of additional traffic is anticipated.	FEIS, Table 3-25 (Section 3.2.5 Oregon Department of Transportation Mitigation Strategy) summarizes that Transportation Demand Management Program. The program includes a strategy to increase employee shuttle bus routes and pick-up times in order to "increase employee ridership to over 12,000 per season and reduce peak hour trips by 150 vehicles." MHM prepares annual traffic monitoring reports that document its trip impacts. Accordingly, these monitoring reports would be used to monitor the effectiveness of the proposed TDM program, and to allow MHM to make adjustments to the strategies toward achieving the above transportation objectives.
5-2	Transit Service: The Master Plan requires MHM to utilize carpooling and alternative modes of transportation as means to minimize the need for parking. The Forest Service DEIS states that Mt. Hood Meadows will pursue increasing the role of transit to the ski area with the goal of increasing the current number of buses per day providing skier services to the mountain from 20 to 90 by 2015. ODOT recommends that future monitoring reports quantify transit ridership and report changes in mode split from year to year.	A Mass Transit Alternative was an alternative considered, but eliminated from detailed study as part of this FEIS and as described in Section 2.7.4. As required by PDC T-2 (ROD), "In cooperation with ODOT, a traffic monitoring program would be maintained at MHM to be able to determine the effectiveness of traffic mitigation measures and the correlation of ski area usage to the total traffic volume." When the monitoring program is developed, MHM can work with ODOT to determine how to quantify transit ridership.
5-3	Multimodal Plan Participation: Mt. Hood Meadows is participating in the Multimodal planning process. While the DEIS states that this is "outside the scope of site-specific NEPA" (Section 4.1.4, pg 4-6), ODOT recommends that this language be amended to reflect ongoing coordination and participation.	The FEIS has been updated to state: "Requiring a special use permittee to participate in an inter-agency process is outside the scope of site-specific NEPA. MHM has chosen to participate in the Multimodal Transportation planning to date, and may continue to do so in the future." See FEIS, Table 4-1.

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5-4	We encourage the Forest Service to include the recommended Fiber Optic Extension. In Table 4-1 the DEIS states that, "This recommendation is outside the geographic scope of this project (Mt. Hood Meadows Ski Resort permit area) as established in the Purpose and need for Action (Section 1.3)" (pg 4-6). However, traffic flow and safety are stated as goals in Purpose of and Need for Action (Section 1.3): "This need for expanded parking is also supported by the need to improve traffic flow and public and customer safety along the access routes (i.e., FSR 3545, OR 35 and Highway 26) to MHM as well as within the Main Parking Lot" (pg 1-5).	The stated need for expanded parking is addressed by removing the existing parking issues and use along the access roads and by constructing the left- and right-turn lanes from Highway 35. The geographic scope of the project includes the Mt. Hood Meadows Ski Resort permit area and access road to the permit area (see FEIS, Section 1.3). The proposed fiber option extension is from US 26 Timberline to the Twilight Parking Lot site approach on Highway 35; this is outside the scope of the project. Lastly, the Forest Service is working with Oregon Department of Transportation in the initial planning stages for a larger project with a similar Purpose and Need for Action and scope as this proposal. The project is for an intelligent transportation system (ITS) along Highway 26 from Sandy to the junction with Highway 216 and from the junction of Highways 26 and 35 to Parkdale. This proposal falls under the Purpose and Need for Action for this second project.
5-5	Furthermore, the traffic impacts of the new parking lot will not be limited to the immediate vicinity of the proposed lot. These off site impacts are acknowledged through the DEIS recommendation that MHM contribute 33 percent toward the cost of a future traffic signal at the OR 35/Button Junction intersection (pg 3-43). Therefore, ODOT believes it is reasonable to include fiber optic extension within the scope of this project.	See response to Comment #5-4.
5-6	The DEIS acknowledges that "ODOT mobility standards are not currently met, and would not be met in the future, at three unsignalized intersections in the Government Camp section" (pg 3-42). As part of the Mitigation Strategy the DEIS claims that the MHM TDM Program will "Reduce weekend peak hour trips through the Government Camp section of US 26 to pre-Twilight Parking Lot levels after the opening of the Twilight Parking Lot" (pg 3-45). The fiber option extension is critical for implementing the MHM TDM Program by: (1) Providing real-time data to implement the MHM TDM Program. Variable message signs strategically placed along US 26 and OR 35 will provide drivers up to date information relating to parking to capacity, travel time, and weather conditions, which will encourage use of alternative modes of transportation and reduce traffic congestion on US 26 and OR 35. (2) Providing real-time data to ODOT, Oregon State Policy, and the Hood River Sheriff's office. These agencies will use this data to enhance communications, Intelligent Transportation Systems (ITS), and traveler safety information (e.g. ODOT TripCheck). This will result in improved safety and peak hour congestion management along the US26-OR35 highway corridor. (3) Facilitating the addition of cell towers on Mt. Hood. Additional cell towers will eliminate gaps in service for travelers and recreational users. Increased cell service will allow passengers to report accidents or hazardous conditions and allow drivers that have broken down to call for assistance, increasing safety and reducing the amount of time that travel is impeded.	See response to Comment #5-4.
5-7	This combination of technologies will discourage visitors from diving their private vehicle to MHM only to find the parking lot is full by providing information earlier in their trip. Therefore, drivers may be less inclines to park on the side of the road because won't feel pressured to park in unsafe areas after completing a long journey. The fiber optic extension will decrease the amount of traffic on the highways, reduce congestion, and improve safety thereby reducing the potential impact of the proposed parking lot.	See response to Comment #5-4.
6-1	There is insufficient information here for a reader/decision maker to evaluate adequacy to serve guests. What is the design capacity for Nordic? For bus terminal? What is the industry standard in sure feet per PAOT? What is the Nordic user attendance? What is the trend?	Nordic user attendance and trends in the area are discussed in Chapter 3 of the FEIS. During the past two ski seasons visitation to MHM Nordic trail system has nearly doubled. An annual visitation of 2,759 was recorded for the 2009-2010 season. During the 2010-2011 season, 5,207 visits were recorded. As of February 2012, 3,634 visits had already occurred. Based on this trend, use of the Nordic trail at MHM ski area is expected to continue to grow. FEIS, Section 3.1 fully analyzes and discloses the impacts of this project on Nordic ski operations. See response to Comment #4-8 for more information.

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7-1	I had previously made the suggestion that the undersized ODOT gravel barn be relocated from the center of the recreational area, to a location on the East side of highway 35 further North but still within a few miles of the current location in the center of the recreation zone. ODOT employees have told me the current barn is not large enough for current needs, and, although convenient for them, that the gravel does not need to be in such a central location. If MHM does indeed build it's new large parking lot, there will be a significant further demand on the gravel barn, and it would definitely need to be expanded, thus becoming a further eyesore and pushing up against the access road and the twilight "improvements". Alternatively, the current gravel barn footprint could instead be used as the core of a new nordic center. This new Nordic center could include a smaller, more appropriate sized, parking lot and maintenance shed. As it sits now the gravel barn is about 3 acres and could fairly easily be expanded to 5. This option would be the less disruptive to the environment than clearing existing forestland and would still allow MHM to have some increased parking (approximately the 400 cars that they claim are a safety hazard on the access roads (a practice that they are inexplicably unable to halt.)	This alternative was considered and has been added as an alternative considered, but eliminated from detailed study in the FEIS (see FEIS, Section 2.6.5). The special use permit includes the operations and maintenance associated with a sand shed and two maintenance buildings to be used for winter sanding by Oregon Department on Transportation (ODOT) on approximately 3 acres. ODOT has made no indications to the Forest Service that this site is no longer needed for winter operations. Also, ODOT has not indicated that the maintenance yard is undersized or would require expanding if this project is implemented. ODOT has been actively involved in all stages of planning for this project (see FEIS, Section 4.1.4). Use of this site as either a parking lot or Nordic ski center is outside the scope of this project as discussed in FEIS Section 2.6.5. Two other special uses permit overlap with the ODOT maintenance yard. First, the Oregon Nordic Club has a special use permit administered by the Teacup Chapter for a storage shed located in the maintenance yard. Also, the MHM Permit Area overlaps with part of the maintenance yard. In order to implement this alternative, the use at this site by ODOT and the Oregon Nordic Club special use permit would need to be terminated. Also, the MHM permit area boundary would have to be expanded to include the entire ODOT maintenance yard as well as the surrounding area needed for proper storm water management and snow removal associated with parking lots in order to implement this alternative. Terminating special use permits does not meet the purpose and need for this project; and, relocating these uses to other areas of the Forest and/or expanding the MHM permit area to accommodate the parking lot is outside the geographic scope of the project (see FEIS, Section 1.3).		
7-2	This location also not only preserves existing nordic trails, it is perfectly situated for a few new connector trails to the old Clark Creek Snow Park, and possible connector trails uniting the MHM Nordic Area with the Teacup Nordic Area. This unified nordic area could connect through a skiable underpass under the new Clark Creek Bridge. ODOT has already said this underpass is sufficiently overbuilt to allow a passage underneath with minimal modifications (mainly moving a few boulders). I as well as others have scouted this underpass out this last winter and it would in fact be incredibly easy to accomplish.	See response to Comments #7-1, #4-2 and #4-3.		
7-3	My proposal still seems the second best alternative while giving MHM part of what they want. It would also benefit the growing nordic community, and have the least environmental cost to the mountain. The best alternative, environmentally speaking, is to do nothing.	Chapter 3 of the FEIS fully analyzes Alternative 1 - No Action Alternative, described in FEIS, Section 2.2.2. This Alternative represents the current conditions. In this alternative, none of the proposed parking improvements or connected actions associated with the Mt. Hood Meadows Parking Improvements Project would be constructed. See response to Comment #7-1 for more information.		
7-4	I know MHM has been working on this development for years, but I think the initial impetus behind their proposal should be re-evaluated. Alpine skiing season ticket sales are actually diminishing. Though MHM would like to say it was because of a 5% ticket price increase last year. Those of us who know better know it is because of the diminished quality of the experience on the busiest best days, i.e., on the weekends and holidays when there happens to be fresh snow. These are the few days a year that MHM wants to accommodate, by adding new parking. This will only compound the waits in the lift lines (fresh snow often means fewer lifts open), dangerous crowding on the slopes and an over-packed lodge. Of course when frustrated skiers are packed into the lodge, they spend more money on food and drink. Is this the real reason they want to pave our forests?	facilities also was identified in the ROD for the Master Plan (page 9). Therefore, the primary purposes of this project is to serve the design capacity for parking, including area for snow storage, and maintenance facilities that was conceptually approved while minimizing environmental impacts from parking lot construction and maintenance, as was outlined in the Master Plan in 1997. This planning process analyzed six alternatives to address this Purpose and Need for Action. This		
7-5	When part of MHM justification was "safety concerns on the access roads" one needs to evaluate the safety of more cars and thus more skiers crowded together, and, though they deny it, the increased rate of accidents on the slopes.	The design winter capacity established in the Master Plan for lifts, groomed trails, and skier services is 13,900 PAOT (Master Plan, page 9). The Preferred Alternative (Alternative 6) estimates parking capacity at 8,773, which is 3,727 less than authorized by the Master Plan. On peak days that correspond with major snow events, if MHM is unable to open all of its terrain due to avalanche hazards, then uphill lift capacity will limit the number of skiers on the slope at one time. FEIS, Section 3.1 fully analyzes and discloses the impacts associated with the number of skiiers (person at one time).		
7-6	At the very least, if MHM is to be allowed to move ahead with the "FS favored alternative 6", I implore the FS to compel MHM to be bound by a firm legal commitment for minimum of \$500,000 for a nordic lodge and an additional \$200,000 committed to the study and development of newly purposed trails connecting MHM to Teacup. These trails mostly exist already as hiking trails visible on old FS maps, but have fallen into disrepair. We do not want to leave future nordic improvements mentioned in the MHM proposal, or Alternative 6, to trust. There should be a legal commitment to these funds and there should be a time limit of 3 years to the finished construction of the nordic building.	Adding a Nordic lodge and connecting trails is outside the scope of this project. See response to Comment #4-2. Two additional implementation PDCs have been added to the FEIS (Section 2.3). PDC C-10 states: "The construction of the replacement Nordic ski trails would be completed the same year that the original trails are removed in order to allow for continuous use of the trails during the winter season." And PDC C-11 states: "The new Nordic guest building would be completed within three years of project construction beginning."		

Comment Number	Comment	Response	
7-7	Also, if this alternative 6 parking lot is built, it should not be locked behind a closed gate during the off season. This is public land, and there are traditional hiking trails such as the access to Elk Meadows and the public should not have to park on the access roads and walk past the closed gate and over the parking lot to access the trailheads.	The parking lot would be gated as described in FEIS, Section 2.3 Project Design Criteria in PDC W-4: "The parking lot access road constructed under this planning process should be gated to reduce harassment to deer and elk during calving and rearing from April 30th to July 30th each year. If the ski season extends beyond April 30th, the restriction would begin as soon as the ski season ends. Also the restriction would be in place when there is less than 2-feet of snow adjacent to the Nordic ski trails in the non-compacted areas after April 30th." This PDC was put into place to protect the deer and elk summer range as required by the Mt. Hood Land and Resource Management Plan (Forest Plan). The timing restrictions coincide with similar closures on the Hood River Ranger District. The gates would be opened and the parking lot available for public use after July 30th each year.	
8-1	Our primary concern is with the Forest Service's decision to expand the size and footprint of the parking facilities beyond those set forth in the Master Plan for Mt. Hood Meadows. The Master Plan was subject to a rigorous and in depth public process that focused heavily on the issue of transportation for Mt. Hood. After that lengthy process, the Forest Service decided that the desired future conditions would include the objective to: Limit the amount of parking authorized as a means to promote alternative transportation models, to minimize land area committed to development and to respond to public and agency concerns about increased traffic congestion on US 26. Master Plan at 9. With this objective in mind, the Forest Service limited the total size of the additional parking facilities to 8 acres and stated explicitly that "[s]storm water management and snow storage are included in, rather than in addition to, this total." Id.	The Mt. Hood Meadows Master Plan (1997) defines the desired future condition for an expanded permit area; provides general direction for future development at MHM; and establishes winter sports design capacity and summer use maximum capacities. The approval for future development does not authorize specific facilities or uses, define the exact location of facilities, nor stipulate a timeline for development. Rather, it conceptually approves the number and approximate locations of lifts, additional ski terrain, base area expansions, other winter facilities and uses, access and service roads, and summer uses. Implementation, including this project, requires additional site-specific environmental analysis pursuant to requirements in the NEPA. The site-specific environmental analysis may supersede the management direction provided in the Master Plan. Alternative 4 is consistent with the Master Plan while all other action alternatives (Alternatives 2, 3, 5 and 6) are inconsistent with the Master Plan for the parking lot development. The consistency with the Master Plan is discussed for each alternative and fully disclosed in FEIS, Section 2.2.	
8-2	The Draft EIS fails to address how the Preferred Alternative accomplishes the objective of "minimize[ing] the land area committed to development" Master Plan at 9. It appears, in fact, that the opposite is true – namely that the Forest Service has allowed an increase in the amount of land that was approved for development as compared to the Master Plan.	The Master Plan authorized 4,600 vehicles with 30.5 acres of parking, resulting in 12,500 people-at-one-time (PAOT). Over time, the size of vehicles has increased and the number of people travelling in the vehicles has decreased. As a result, even the largest parking lot alternative (Alternative 3), does not meet the number of vehicles or PAOT authorized in the Master Plan. Alternative 3 would result in 3,545 vehicles with 29 acres of paved parking lots, resulting in 8,860 PAOT. As such, all action alternatives are meeting the desired future condition for transportation. The desired future condition states: "Limit the amount of parking authorized as a means to promote alternative transportation modes, to minimize the land area committed to development, and to respond to public and agency concerns about increased traffic congestion on US 26" (Master Plan ROD, page 9). Also, the increase in parking for Alternative 6 (Preferred Alternative) represents 0.12% of the overall permit area which also demonstrate how the desired future condition will be met. This information has been added to FEIS, Section 2.2 for all action alternatives and to FEIS, Section 2.5.	
8-3	As the DEIS states, parking facilities are generally adequate except for peak days, and therefore a parking lot that is consistent with the specifications in the Maser Plan may very well alleviate much if not all of the current overflow parking that ends up on the access roads.	The demand on peak days under the existing conditions and in each of the action alternatives was fully analyzed in the FEIS, Section 3.1. Alternative 4 is consistent with the Master Plan, and therefore, provides the analysis requested. For more information, see response to Comment #3-1.	
8-4	The FEIS should include a more explicit discussion of how many cars are being forced onto those access roads in order to allow for a reasoned comparison of alternatives. The DEIS states that the "number of reported vehicles during the 2011-2012 ski season was 2,639 vehicles parked at one time or approximately 121 vehicles per acre." DEIS at 3-8. This figure appears to be the maximum number of vehicles that can be parked in the existing lots. But this does not answer the question of how many total vehicles parked or attempted to park at Mt. Hood Meadows on peak days, i.e. how many cars were forced to use the access roads for parking. The Forest Service needs to provide this information to allow for a reasoned analysis of whether a parking lot that is 8-acres in size could serve the actual demand – now and the in future – as opposed to using only the design capacity – People at One Time (PAOT) – as a yardstick.	The FEIS, Section 1.2 has been updated to provide the additional information requested. In the event that the parking areas reach maximum capacity, users are turned away. On the peak use days, the parking lots are totally full generally between 9:30 and 11:00. Antidotal evidence shows that approximately 250 cars are turned away on these peak days. These visitors have continued to attempt to find additional parking in other less desirable and potentially dangerous locations, such as alongside Highway 35 or FSR 3545. This information was used as part of the analysis in FEIS, Chapter 3.	
8-5	We ask that the Forest Service include in the FEIS explicit information on the total number of cars parked at Mt. Hood Meadows on weekend days and holidays during recent ski seasons. Ideally, that information would be included in a spreadsheet that lays out total cars parked for each weekend and holiday during the ski season, including an estimation, if available, of the total number of cars parked on the access roads. That information can then be compared to the additional parking capacity in each of the alternatives to allow for an informed decision.	FEIS, Section 3.1 includes information regarding parking capacity and recreation demand; and, FEIS, Section 3.2 includes traffic count information for the permit area. A comparison of parking capacity is included in FEIS, Section 2.5, Comparison of Alternatives. For more information regarding the demand and parking capacity, see response to Comment #8-4.	

Comment Number	Comment	Response
8-6	We also ask that the Forest Service include a more thorough discussion of the cumulative effects associated with increasing parking capacity for recreational activities at Mt. Hood. We are particularly concerned about 800-car parking lot set forth in the Timberline Lodge Master Plan, which was accepted by the Forest Service. Before approving a new parking lot at Mt. Hood Meadows, the Forest Service should consider in one document the potential impacts to transportation from the combined effects of the two new parking facilities that have been put on the table by the two main ski areas on Mt. Hood.	All projects that overlap in time and space were analyzed for all recreation resources as part of the cumulative effects analysis. The spatial area considered was the MHM Permit Area and surrounding Sno-parks/Nordic ski trails. The rationale for this boundary is the interconnected access to winter recreational resources. The cumulative effects for recreation resources within these parameters are fully analyzed and disclosed in the FEIS, Table 3-13. Further, the Timberline Lodge parking lot is in the "plan-to-project" phase where the Forest Service and permittee developed a proposed action. As of September 2013, this project does not have a proposed action. Without a proposed action, the direct and indirect effects cannot be considered in this cumulative effects analysis since there is no way to determine whether or not the effects overlap in time and space. Also, given the stage of this project, it may or may not be carried forward to formal NEPA planning.
8-7	The DEIS discusses the very slight potential for the maintenance facility, which would be built on the north side of the lot, to result in measurable additions of sediment to Mitchell Creek, which is on the south side of the parking lot. This speculative and uncertain impact, which in any event would be very small in comparison to the recent improvements in sedimentation rates resulting from the paving of the lot, does not warrant the Forest Service rejecting the proposed alternative.	FEIS, Section 3.4 states: " the potential for increased sedimentation into Mitchell Creek has nothing to do with construction activities and the proposed location of the Sunrise Vehicle Maintenance Shop. The shop would be located across the parking lot from Mitchell Creek and erosion control during and after construction as outlined in the PDC would eliminate the possibility that sediment would enter Mitchell Creek as a result of the maintenance shop construction." The concerns associated with the proposed maintenance shop location in Alternative 2 are related to snow removal. FEIS, Section 3.4 continues on to state: "Once the maintenance shop is built, however, it is anticipated that snow removal strategies currently used would change so that snow is not blown or stored along the northern edge of the parking lot where the new Sunrise Vehicle Maintenance Shop would be located. This would result in more snow, and any associated gravel and/or soil, being blown or pushed and stored along other edges of the parking lot, including the southern edge that borders Mitchell Creek. The maintenance shop would also increase the overall amount of snow that would need to be treated in the Sunrise lot since it would increase the overall footprint by 1.8 acres or approximately 25 percent." The impacts of the Sunrise Maintenance Shop locations to water quality, including the impacts associated with the recent paving, are fully analyzed and disclosed in FEIS, Section 3.4.
8-8	Both FOMH and MHM agreed to the proposed alternative [Alternative 2] because of the more limited disturbance to upland areas, a reduction in the number of trees to be removed, and a reduced concern about impacts to visual quality objectives. We do not believe that the DEIS provides an adequate discussion of these benefit that would flow from the proposed alternative [Alternative 2] as compared to Alternative 4.	FEIS, Section 2.5 discloses the overall acres of disturbance associated with each proposed location for the Sunrise Maintenance Shop. Overall, the Sunrise Maintenance Shop in Alternative 2 would result in 1.8 acres of disturbance, compared to 2.5 acres in Alternatives 4, 5 and 6. The impacts to vegetation resources associated with these acres of disturbance are fully analyzed and disclosed in FEIS, Section 3.12. The visual quality impacts associated with Sunrise Maintenance Shop are the same for all action alternatives, regardless of the location (see FEIS, Section 3.11).
8-9	We ask that the Forest Service acknowledge in the FEIS that Mt. Hood Meadows and FOMH had, through a collaborative process, agreed on the design of the Sunrise facility as set forth in Alternative 2. The decision maker should know that the permittee has worked with the local community in a collaborative manner to find an agreed design before choosing an alternative that differs from that design. The FEIS and ROD should also clearly articulate why or why not the Forest Service is selecting an alternative that is different from one that resulted form this collaborative process.	Public involvement has occurred throughout the NEPA process, including scoping, field trips, notice and comment periods, government-to-government consultation and coordination, and informal conversations with members of the public and permittee. All alternatives were considered during the development of the public include one put forward by Mt. Hood Meadows, Friends of Mt. Hood, Oregon Department of Transportation and individuals. The rationale for why alternatives were selected or not selected are discussed in the draft Record of Decision.
8-10	We also ask that the Forest Service include in the FEIS some discussion of the potential benefit that could result from the relocation of the maintenance facility, which would result from Mt. Hood Meadows' plan to remediate the existing contamination that remains in place under the maintenance facility. MHM has stated unequivocally that it plans to excavate the remaining contaminated soil when repurposing the existing maintenance facility. This would be a benefit to the environment that would result from the relocation of maintenance activities to the Sunrise Lot – either as a connected action or as an indirect and/or cumulative affect. The Forest Service should discuss this issue in the FEIS, drawing from the DEQ file information on the prior spill event and clean-up.	See response to Comment #3-8. Also, the benefits of moving the maintenance shop are discussed in the FEIS, Section 3.4 as well as throughout FEIS, Chapter 3. As discussed in FEIS, Section 2.2, the existing shop would initially be used for storage. The existing generators and electrical distribution would remain within the existing shop. Removing the existing fuel tanks is not part of this project since the existing maitenance building is remaining in place. The existing maintenance building may be re-purposed for skier service in the future; however, this would potentially require additional site-specific NEPA depending on the proposed actions. Removal of the existing fuel tanks and the contaminated soil will occur when the existing facility is repurposed. At this time, there is no proposed action so it would not be considered a reasonably foreseeable action, and thus, was not analyzed in cumulative effects. Mt. Hood Meadows has committed to ensure existing tanks and equipment continue to comply with underground storage tank regulations until removal or replacement.
10-1	We are concerned that Mt Hood Meadows and the FS have jumped to conclusions in deciding to build a parking lot where a beautiful mature forest existing today in order to meet peak demand for parking that exists just a few days per year. This expansion of the parking facilities may not be consistent with the Master Plan and may trigger the need to amend the Master Plan.	See response to Comments #3-1 and #8-1.

Comment Number	Comment	Response		
10-2	We urge the FS to explore alternatives, such as improved mass transportation of recreation users from Portland to the mountain, in order to meet the peak demand for at Mt Hood Meadows. Why should the forest suffer 365 days per year, in order to meet just a few days of peak demand?	Based on this management direction, MHM is required to continue using and growing alternate forms of transportation in order to reach the PAOT authorized in the Master Plan. For the 2012-2013 ski season, MHM continued its transportation incentive program to curb peak day parking issues. The program included: subsidized bus and lift packages, rescheduling competition and race events, employee transportation, carpooling, information sharing, peak day pricing, third party transportation services, and après skiing. The Mass Transit Alternative provides a full description of these services. This alternative was considered, but eliminated from detailed study as described in FEIS, Section 2.6.4. Also, see response to Comment #4-13 for more information.		
10-3	The FS should also consider implementation of a Transportation Demand Management (TDM) Plan, such as reduced lift ticket prices during off-peak times or increased parking fees during peak times to provide incentives for customers to use the ski area during non-peak days and times and/or to use other transportation options.	See response to Comment #10-2.		
10-4	There are alternative ways to address the safety issues as well, such as prohibiting parking on the shoulder of the road.	See response to Comment #7-4.		
11-1	The undersized ODOT gravel barn could and should be relocated from the center of the recreational area, to a location on the East side of highway 35 further North but still within a few miles of the current location in the center of the recreation zone. If MHM does build it's new large parking lot, there will be a significant further demand on the gravel barn, and it would definitely need to be expanded, thus becoming a further eyesore and pushing up against the access road and the twilight "improvements".  Alternatively, the current gravel barn footprint could instead be used as the core of a new nordic center. This new Nordic center could include a smaller, more appropriate sized, parking lot and maintenance shed. As it sits now the gravel barn is about 3 acres and could fairly easily be expanded to 5. This option would be the less disruptive to the environment than clearing existing forestland and would still allow MHM to have some increased parking (approximately the 400 cars that they claim are a safety hazard on the access roads (a practice that they are inexplicably unable to halt.)	en ' t t t r		
11-2	This location also not only preserves existing nordic trails, it is perfectly situated for a few new connector trails to the old Clark Creek Snow Park, and possible connector trails uniting the MHM Nordic Area with the Teacup Nordic Area. This unified nordic area could connect through a skiable underpass under the new Clark Creek Bridge. ODOT has already said this underpass is sufficiently overbuilt to allow a passage underneath with minimal modifications (mainly moving a few boulders). I as well as others have scouted this underpass out this last winter and it would in fact be incredibly easy to accomplish.	See response to Comment #7-2.		
11-3	My proposal still seems the second best alternative while giving MHM part of what they want. It would also benefit the growing nordic community, and have the least environmental cost to the mountain. The best alternative, environmentally speaking, is to do nothing.	See response to Comment #7-3		
11-4	At the very least, if MHM is to be allowed to move ahead with the "FS favored alternative 6", I implore the FS to compel MHM to be bound by a firm legal commitment for minimum of \$500,000 for a nordic lodge and an additional \$200,000 committed to the study and development of newly purposed trails connecting MHM to Teacup. These trails mostly exist already as hiking trails visible on old FS maps, but have fallen into disrepair. We do not want to leave future nordic improvements mentioned in the MHM proposal, or Alternative 6, to trust. There should be a legal commitment to these funds and there should be a time limit of 3 years to the finished construction of the nordic building.	See response to Comment #7-6.		
11-5	Also, if this alternative 6 parking lot is built, it should not be locked behind a closed gate during the off season. This is public land, and there are traditional hiking trails such as the access to Elk Meadows and the public should not have to park on the access roads and walk past the closed gate and over the parking lot to access the trailheads.	See response to Comment #7-7.		
12-1	I carpool whenever possible for BOTH types of skiing and would like to see more emphasis put on carpooling rather than parking lot expansion.	See response to Comment #4-13.		

Comment Number	Comment	Response
13-1	The field trip made clear to me that the [Forest] Service considers the construction of a parking lot to be necessitated by safety concerns, and I got the definite sense that it did not view "Alternative 1" (no construction) as a genuine option. With 2012-2013 ski season behind us, I remain skeptical of that view. My own experience as a (Nordic) skier this season suggests that the Service overstates the extent of the problem. There are indeed very few days in the year when parking facilities are filled to capacity and when managing the overflow becomes a necessary, perhaps even challenging, task. Ironically, this was essentially confirmed by one of the Hood Meadows managers during the field trip, in a statement made in response to a concern I raised re. alpine users running all over the Nordic trails, in particular the lone connector of the early proposal, to the effect that this would occur only very rarely! I understand that on those few days, management of traffic and enforcement of safety require significant preparedness and involvement of manpower: but it is difficult to see how they warrant constructing an additional huge parking lot that would remain empty "99.9%" of the year! Particularly when balanced against its deleterious effect on the quality of Nordic skiing at Meadows, among other impacts.	See response to Comment #3-1.
13-2	The lot would essentially sit smack in the middle of the Nordic trail system () it would further disconnect the two components of the system on either side of the road. Not only would it do nothing to address some of the current shortcomings of the (dis)connection – the single crossing, the section parallel to the road that gets sprayed with gravel from snow removal equipment, etc. – it would inevitably make it far worse. In fact, placing the lone connecting trail right behind the proposed large lot and "skier service building", exactly in the way between these and the downhill area, essentially guarantees the trail will be trampled by other users, non-users, with and without skis, and turned into a conflict-generating mess. In short, the plan largely destroys the integrity of the Nordic trail system at Meadows. It is, quite literally, a plan to build a huge parking lot exactly over the central portion of this system. () The few added trails that the plan proposes seem mostly concocted to buttress a 'no net loss' rationale.	The Preferred Alternative (Alternative 6) includes approximately 0.1 miles of additional Nordic ski trails. The proposed Twilight Parking Lot would remove approximately a half mile (or 2,746 feet) of Nordic ski trails from the Hanel and Little Loops. The trails constructed as a connected action are the same as Alternative 3 as shown in FEIS, Figure 2-2. This includes approximately 0.7 mile (or 3,432 feet) miles of new Nordic ski trails, resulting in a net increase of 0.1 mile (or 686 feet). The DEIS contained an error in the description of the new trails that has been corrected. See response to Comments #1-1 and #4-4 for more information.
13-3	These concerns include (1) improper use/crossing of Nordic trails by alpine skiers/snowboarders as they move from the new parking area to the lifts and back. (2) gravel spray on trails from snow removal equipment, (3) disconnection between the two components of the Nordic system. Generally speaking, increased noise pollution from users, cars, etc.	The impacts to Nordic ski operations, including gravel spray and trails connections, has been fully analyzed and disclosed in FEIS, Section 3.1. See response to Comments #4-1, #4-2 and #4-8 for more information.
14-1	I am concerned that the proposed "Twilight Parking Lot" expansion will cut in to the already limited Nordic skiing at MHM. What I would like to see is MHM Nordic trails connect to Teacup under the road through the big new culvert. Then MHM could move the Nordic Center "Lodge" (which is way too small and inadequate now) to the gravel pit building area. That way the trails could be expanded and not compromised by parking lot expansion.	See response to Comments #4-2, #4-3 and #7-1.
14-2	I ski at the downhill area every weekend and I never saw a really crowded weekend this year with more parking needs. Perhaps MHM has finally priced itself out of the market??? If they do need another parking lot, it would only be used a few weekends a year.	See response to Comment #3-1.
15-1	[Alternative 6] nevertheless shares the basic flaw of all these alternatives: namely, by placing a big lot more or less smack in the middle of the Nordic trail system, (1) it places a great proportion of the trails in close proximity with paved areas (gravel issue, in particular, possibly noise and pollution), and (2) it tends to aggravate the present disconnection between the two components of the trail system, on either sides of the road.	The Project Design Criteria (PDC) R-7 (see FEIS, Section 2.3) strives to minimize the gravel spray to the greatest extent possible. This PDC states: "In order to prevent road gravel from being deposited on the Nordic ski trails, measures should be taken such as minimize traction gravel, provide a buffer, or create snow berms." See response to Comment #13-3 for more information.
15-2	I feel it would be appropriate to extend somewhat the commenting period (no explicit date is offered by the Service, it would be useful if one were clearly identified and given); I know of several people who have not yet sent comments, but likely would if confident that these would be taken into account.	The notice and comment period is determined by 36 CFR Part 218. §218.25(iii) states: "Comments on a proposed project or activity to be documented in an environmental impact statement shall be accepted for a minimum of 45 days beginning on the first day after the date of publication in the Federal Register of the notice of availability of the draft EIS." A Notice of Availability (NOA) announcing the comment period was published in the Federal Register (Vol. 78, No. 86) on May 3, 2013. A legal notice announcing the availability of the Mt. Hood Meadows Parking Lot Improvements Draft Environmental Impact Statement for review and comment was published in The Oregonian (newspaper of record) on May 4, 2013. The 45-day comment period ended on June 17, 2013. All comments received, including those received after the comment period ended, have been considered and responses included in this appendix.

Comment Number	Comment	Response
17-1	To help ensure that further adverse environmental impacts from parking lot proposals which are inconsistent with the 1997 master plan are avoided, we recommend that the Forest work with Mt. Hood Meadows, the Oregon Department of Transportation and others to increase the effectiveness of transportation demand management efforts. Consider, for example, incorporating additional decision thresholds (e.g. target for skier/vehicle proportions) and management responses (e.g. such as increased bus subsidies or preferential parking for carpools) into the appropriate action-forcing documents (e.g. annual operating permits, Oregon Department of Transportation monitoring requirements, NEPA project design criteria).	See response to Comments #5-1 and #5-2.
18-1	The parking lot could be easily be moved to the west and a little north and still meet the intention of 1) consolidating paved areas with the state sheds, 2) not paving over Hannel and little loop, 3) locating the lot over the less frequently groomed and used Bear Grass ski trail and 4) staying out of any riparian areas found at the time of recon or prior.	See response to Comment #4-19.
18-2	I don't think that my comments were seriously considered when one alternative in the DEIS clearly overlapped an existing Riparian Reserve!	See response to Comments #4-1 and #4-19.

# Appendix C - Letters from Government Agencies



#### **Department of Transportation**

Region 1 Headquarters 123 NW Flanders Street Portland, Oregon 97209 (503) 731.8200 FAX (503) 731.8531

June 14, 2013

To: Jennie O'Connor-Card, Mt Hood National Forest

From: Rian Windsheimer, ODOT Region 1 Policy and Development Manager

Cc: Joy Archuleta, Acting District Ranger Jason Tell, ODOT Region 1 Manager

Kirsten Pennington, AICP, ODOT Region 1 Planning Manager

Avi Tayar, PE, ODOT Region 1 Traffic Analyst

Seth Brumley, ODOT Region 1 Planner

Re: ODOT Review of the Mt. Hood Meadows Parking Improvements Draft

**Environmental Impact Statement** 

Thank you for the opportunity to comment on the Mt. Hood Meadows (MHM) Parking Improvements Draft Environmental Impact Statement (DEIS). The DEIS evaluates six alternatives for the proposed Twilight Parking Lot and presents mitigation for the associated environmental impacts. ODOT is pleased to see the following recommendations included in the DEIS:

**Turn Lanes**: The DEIS includes construction on OR35 of a northbound left turn lane and a southbound right turn lane into the Forest Service road approach to the Twilight Parking Lot. The turn lanes will improve safety by separating the through traffic from vehicles waiting to turn in to the proposed parking facility.

**Transportation Demand Management (TDM) Monitoring:** TDM monitoring will allow the Forest Service to monitor the effectiveness of the MHM TDM Program. In addition, both the Master Plan and the Project Design Criteria (PDC) for this project require effectiveness monitoring. While the DEIS does not quantify the effectiveness of the MHM TDM Program measures listed on pages 3-44 and Table 3-25 (Section 3.2.5), ODOT recommends that future monitoring reports quantify TDM effectiveness at key intersections where the impact of additional traffic is anticipated.

**Transit Service**: The Master Plan requires MHM to utilize carpooling and alternative modes of transportation as a means to minimize the need for parking. The Forest Service DEIS states that Mt. Hood Meadows will pursue increasing the role of transit to the ski area with the goal of increasing the current number of buses per day providing skier services to the mountain from 20 to 90 by 2015. ODOT recommends that future monitoring reports quantify transit ridership and report changes in mode split from year to year.

Multimodal Plan Participation: Mt. Hood Meadows is participating in the Multimodal planning process. While the DEIS states that this is "outside the scope of site-specific NEPA" (Section 4.1.4, pg 4-6), ODOT recommends that this language be amended to reflect ongoing coordination and participation.

While ODOT appreciates the coordination and inclusion of these recommendations, we encourage the Forest Service to include the recommended **Fiber Optic Extension**. In Table 4-1 the DEIS states that, "This recommendation is outside the geographic scope of this project (Mt. Hood Meadows Ski Resort permit area) as established in the Purpose and need for Action (Section 1.3)" (pg 4-6). However, traffic flow and safety are stated as goals in Purpose of and Need for Action (Section 1.3):

"This need for expanded parking is also supported by the need to improve traffic flow and public and customer safety along the access routes (i.e., FSR 3545, *OR 35* and Highway 26) to MHM as well as within the Main Parking Lot" (pg 1-5).

Furthermore, the traffic impacts of the new parking lot will not be limited to the immediate vicinity of the proposed lot. These off site impacts are acknowledged through the DEIS recommendation that MHM contribute 33 percent toward the cost of a future traffic signal at the OR 35/Button Junction intersection (pg 3-43). Therefore, ODOT believes it is reasonable to include fiber optic extension within the scope of this project.

The DEIS acknowledges that "ODOT mobility standards are not currently met, and would not be met in the future, at three unsignalized intersections in the Government Camp section" (pg 3-42). As part of the Mitigation Strategy the DEIS claims that the MHM TDM Program will "Reduce weekend peak hour trips through the Government Camp section of US 26 to pre-Twilight Parking Lot levels after the opening of the Twilight Parking Lot" (pg 3-45). The fiber optic extension is critical for implementing the MHM TDM Program by:

- Providing real-time data to implement the MHM TDM Program.

  Variable message signs strategically placed along US 26 and OR 35 will provide drivers up to date information relating to parking lot capacity, travel time, and weather conditions, which will encourage use of alternative modes of transportation and reduce traffic congestion on US 26 and OR 35.
- Providing real-time data to ODOT, Oregon State Police, and the Hood River Sheriff's office. These agencies will use this data to enhance communications, Intelligent Transportation Systems (ITS), and traveler safety information (e.g. ODOT TripCheck). This will result in improved safety and peak hour congestion management along the US26-OR35 highway corridor.
- Facilitating the addition of cell towers on Mt. Hood. Additional cell towers will eliminate gaps in service for travelers and recreational users. Increased cell service will allow passengers to report accidents or hazardous conditions and allow drivers that have broken down to call for assistance, increasing safety and reducing the amount of time that travel is impeded.

This combination of technologies will discourage visitors from driving their private vehicle to MHM only to find the parking lot is full by providing information earlier in their trip. Therefore, drivers may be less inclined to park on the side of the road because they won't feel pressured to

park in unsafe areas after completing a long journey. The fiber optic extension will decrease the amount of traffic on the highways, reduce congestion, and improve safety thereby reducing the potential impact of the proposed parking lot.

Thank you again for the opportunity to provide feedback on the DEIS. ODOT looks forward to continuing to work with the Forest Service to provide a safe and efficient transportation system for forest and mountain users.

Sincerely,

Rian Windsheimer, ODOT Region 1 Policy and Development Manager

# THE CONFEDERATED TRIBES OF THE WARM SPRINGS RESERVATION OF OREGON



June 10, 2013

Warm Sorings, Oregon 97761 / 541 553-116

Jennie O'Connor Card, Natural Resource Planner Mt. Hood National Forest 6780 Highway 35 Parkdale, OR 97041

jennieoconnorcard@fs.fed.us (541) 352-6002 FAX (541) 352-7365

Re: Mt. Hood Meadows Parking Improvements EIS #26954 Letter from Tribal Government in Support of Proposed Twilight Lot

Dear Ms. O'Connor Card:

The Confederated Tribes of the Warms Springs is a federally recognized Tribe with authority that derives from the Treaty of 1855. As such, and because the land in question is part of our traditional ceded lands with all treaty rights in effect, we have standing to comment on EIS # 26954, the Mt. Hood Meadows Parking Improvement called the "Twilight Lot Project".

The Confederated Tribes of the Warms Springs has reviewed the plans submitted and posted on the United States Forest Service, Mt. Hood National Forest website - Projects, Twilight Parking Lots and Sunrise Maintenance Shops and find no objection to these plans as presented.

We support the efforts of Mt. Hood Meadows to provide additional parking resources to serve the public's recreational need and to provide a strong tourism recreation base for Mt. Hood, and the tribal member employment opportunities inherent in tourism on Mt. Hood.

Further, we are pleased to work with Mt. Hood Meadows in their efforts to protect water, plant, fish and wildlife resources on Mt. Hood generally and at this site specifically. We have been working in cooperation with Mt. Hood Meadows for more than 10 years in our shared goals of enhancing the quality and protecting the native Huckleberry habitat at this location. After review, we believe that the mitigation of the cut and fill outlined in this proposal is adequate to protect plant and wildlife resources at this site.

In summary, the Confederated Tribes of the Warm Springs supports the approval of construction of the Twilight Parking Lot (12.5 acres), including the access roads, cut/fill slopes, storm water swales, snow storage, and the relocation of the Mt. Hood Meadows vehicles shop to the USFS Preferred Alternative Number 6. The Tribes feel strongly that the Preferred Alternative

Number 6 is the most appropriate alternative that respects the environment.

Thank you for the opportunity to comment on EIS # 26954, the Twilight Parking Lot and the Sunrise Maintenance Shops Environmental Impact study.

Sincerely,

Eugene Greene Jr.

Tribal Council Chairman

Confederated Tribes of the Warm Springs



# United States Department of the Interior



OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
620 SW Main Street, Suite 201
Portland, Oregon 97205-3026

 $9043.1 \\ \text{in reply refer to} \\ ER13/295$ 

Electronically Filed

June 17, 2013

Joy Archuleta Acting District Ranger Hood River Ranger District Mt. Hood National Forest 6780 Highway 35 Mount Hood-Parkdale, OR 97041

Dear Ms. Archuleta:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Mt. Hood Meadows Parking Improvements. The Department does not have any comments to offer.

We appreciate the opportunity to comment.

Sincerely,

Allison O'Brien

Regional Environmental Officer



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY REGION 10

1200 Sixth Avenue, Suite 900 Seattle, WA 98101-3140

OFFICE OF ECOSYSTEMS, TRIBAL AND PUBLIC AFFAIRS

June 17, 2013

Jennie O'Connor Card, Team Leader Mt. Hood Meadows Ski Resort Parking Improvements 6780 Highway 35 Parkdale, Oregon 97041

Re:

U.S. Environmental Protection Agency comments on the Mt. Hood National Forest Draft Environmental Impact Statement for the Mt. Hood Meadows Ski Resort Parking Improvements. (EPA Region 10 Project Number: 11-4114-AFS).

Dear Ms. O'Connor Card.

This review was conducted in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Under our Section 309 authority, we consider the expected environmental impacts, and the adequacy of the EIS in meeting procedural and public disclosure requirements of NEPA.

The draft EIS analyzes the effects of six alternatives to meet the need for additional parking, and improved traffic flow and public and customer safety at Mt. Hood Meadows Ski Resort. The Preferred Alternative would impact 19.0 acres of Winter Recreation Area lands within the Mt. hood Meadows Ski Resort permit area – including 9.4 acres of clearing for the proposed Twilight Parking Lot and associated storm water management and snow storage areas, and 2.5 acres of clearing for the Twilight Equipment Maintenance Yard.

In our August 4, 2011 scoping comments, we recommended that the EIS provide information on how the proposed action is consistent with the 1997 Mt. Hood Meadows Ski Area Master Plan and Record of Decision. Our scoping comments also included recommendations on water quality, air quality, invasive weeds, habitat, roads, climate change effects, transportation, monitoring and adaptive management. The draft EIS's discussion of master plan consistency for all alternatives is responsive to our master plan recommendation, and other information throughout the draft EIS is responsive to our other scoping recommendations. Overall, we believe the draft EIS adequately sets forth the environmental impacts of the preferred alternative and those alternatives reasonably available to the project or action.

Below, we provide comments on the draft EIS's direct responsiveness to one of our water quality recommendations, describe our remaining environmental concerns with the project, and provide a recommendation for the final EIS's traffic monitoring program.

# Water Quality

We appreciate the Forest's thoughtful water quality analysis. The EIS is responsive to our suggestions for information on 303(d) listed streams and relevant Total Maximum Daily Loads.

We also appreciate and support all of the Project Design Criteria for Aquatics, especially PDC A-16.

The Twilight Parking Lot and Maintenance Shed should utilize storm water design methodology and treatment methods outlined in the EPA document "Technical Guidance on Implementing Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act" EPA 841-B-09-001 for treatment of storm water. These designs should be reviewed by appropriate Forest Service staff prior to implementation. \(^1\)

PDC A-16 is directly responsive to our scoping suggestion to maintain and/or restore "...the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow." as detailed in EPA 841-B-09-001. We recognize this PDC as going above and beyond minimum water quality requirements.

EPA Rating, Master Plan Consistency, and Transportation Demand Management We do have concerns regarding the project's potential, unavoidable impacts to wildlife habitat (reduction of suitable habitat for Northern spotted owls), habitat connectivity (impacts to east west migration routes for deer and elk), and disturbance to Riparian Reserves (removal of 400 linear feet of riparian vegetation or increased risk of sedimentation from snow removal limitations). Therefore, we are assigning the rating Environmental Concerns – Adequate (EC-1) to this draft EIS. A copy of our rating system is enclosed.

To help ensure that further adverse environmental impacts from parking lot proposals which are inconsistent with the 1997 master plan are avoided, we recommend that the Forest work with Mt. Hood Meadows, the Oregon Department of Transportation and others to increase the effectiveness of transportation demand management efforts. Consider, for example, incorporating additional decision thresholds (e.g. targets for skier/vehicle proportions) and management responses (e.g. such as increased bus subsidies or preferential parking for carpools) into the appropriate action-forcing documents (e.g. annual operating permits, Oregon Department of Transportation monitoring requirements, NEPA project design criteria).

Thank you for this opportunity to comment and if you have questions, please contact me at (206) 553-1601 or by electronic mail at reichgott.christine@epa.gov, or you may contact Erik Peterson of my staff at (206) 553-6382 or by electronic mail at peterson.erik@epa.gov.

Sincerely, Austra B. Leichett

Christine B. Reichgott, Manager Environmental Review and Sediment Management Unit

Enclosure

<sup>&</sup>lt;sup>1</sup> DEIS, p. 2-31

### U.S. Environmental Protection Agency Rating System for Draft Environmental Impact Statements Definitions and Follow-Up Action\*

### **Environmental Impact of the Action**

### LO - Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

### EC - Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

### EO - Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

### EU - Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

### Adequacy of the Impact Statement

### Category 1 - Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

### Category 2 - Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

### Category 3 - Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEO.

<sup>\*</sup> From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

# References

# References

- Allen, M. 1991. The Ecology of Mycorrhizae. Cambridge University Press.
- Anderson, N.H. 1976. Distribution and ecology of Oregon trichoptera. Technical Bulletin #134. Agricultural Experiment Station, Oregon State University, Corvallis, Oregon, 152 pp.
- Arora, D. 1986. Mushrooms demystified. 2nd Edition. Berkeley, CA: Ten Speed Press. 976 p.
- Beiler, K.J. et al. 2009. Architecture of the wood-wide web: Rhizopogon spp. genets link multiple Douglas-fir cohorts. New Phytologist 185: 543-553.
- Bennett, K., T. DeMeo, N. Smith, 2011. DRAFT Carbon Assessment for the Pacific Northwest Region, USDA Forest Service.
- Bjornn, T. C., and D. W. Reiser. 1991. Habitat requirements of salmonids in streams. American Fisheries Society Special Publication 19: 83-138.
- Bjornn, T. C., et al. 1974. Sediment in streams and its effects on aquatic life. University of Idaho, Water Resources Research Institute, Research Technical Completion Report Project B-025-IDA, Moscow.
- Bjornn, T. C., et al. 1977. Transport of granitic sediment in streams and its effects on insects and fish. University of Idaho, College of Forestry, Wildlife and Range Sciences, Bulletin 17, Moscow.
- Booth, Derek B., David Hartley, and Rhett Jackson. 2002. Forest cover, impervious-surface area, and the mitigation of stormwater impacts. Journal of the American Water Resources Association. 38(3):835-845.
- Borgias, D. and R.W. Wisseman. 1999. Report on the 1998 and 1999 survey for Rhyacophila colonus, in forested torrents near O'Brien, Oregon. The Nature Conservancy of Oregon. Prepared for Diane Perez, Siskiyou National Forest.
- Bower, Andrew Ph.D. 2013, December. Personal communication. Geneticist for Mt. Hood National Forest and Western Washington Area, and Region 6 Whitebark Pine Restoration Program Project Lead. USDA Forest Service, Olympia WA.
- Brabec, Elizabeth, Stacey Schulte, Paul L. Richards. 2002. Impervious surfaces and water quality: a review of current literature and its implications for watershed planning. Journal of Planning Literature 16(4):499-514. Sage Publications.
- Bresson, Barb. 2013. Incorporating Migratory& Resident Bird Concerns into the National Environmental Policy Act Process Region Six Forest Service & OR/WA Bureau of Land Management. USDA Forest Service, Pacific Northwest Regional Office, Portland, OR.
- Brodo, I.M., S.D. Sharnoff, & S. Sharnoff. 2001. Lichens of North America. New Haven: Yale University Press.

- Bull, E. L. and J. R. Duncan. 1993. Great Gray Owl (Strix nebulosa). In Poole, A. and F. Gill eds. Birds of North America, No. 41. The Academy of Natural Sciences, Philadelphia; The American Ornithologists' Union, Washington, DC.
- Bull, E. L. and M. G. Henjum. 1990. Ecology of the Great Gray Owl. Gen. Tech. Rep. PNW-GTR-265. Portland, Oregon: United States Department of Agriculture, Forest Service, Pacific Northwest Research Station. 39 p.
- Bull, E. L., M. G. Henjum, and R. G. Anderson. 1987. Nest platforms for Great Gray Owls. In: Nero, R. W., Clark, R. J., Knapton, R. J., and Hamre H., eds. Symposium proceedings, Biology and conservation of northern forest owls; 1987 February 3-7; Winnipeg, Manitoba, Canada. Gen. Tech. Rep. RM-142. Fort Collins, Colorado: United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 87-90.
- Burke, Thomas E. (1998). Conservation Assessment for Deroceras hesperium Evening fieldslug. Originally issued as Management Recommendations February 1998. Revised September 2005 by Nancy Duncan. http://www.blm.gov/or/plans/surveyandmanage/files/ca-ig-deroceras-hesperium-2005-10.pdf
- Burroughs, E.R., Jr., John G. King. 1989. Reduction of soil erosion on forest roads. General Technical Report INT-264. USDA Forest Service, Intermountain Research Station. Ogden, Utah. 21pp.
- Buskirk, S.W. and L.F. Ruggiero. 1994. Marten. Pages 7-37 in L.F. Ruggiero, K.B. Aubry, S.W. Buskirk, L. Jack Lyon, and W.J. Zielinski, eds. The scientific basis for conserving forest carnivores. Gen. Tech. Rep. RM-254. Ft. Collins, CO: USDA, Forest Service, Rocky Mountain Forest and Range Experiment Station. 184 p.
- Calica, Charles R. 2011. Comments Concerning the Proposed Mt. Hood Meadows Parking Improvements. Letter of response to the project proposal from the Confederated Tribes of the Warm Springs Reservation of Oregon.
- Castellano, M.A. & T. O'Dell. 1997. Management Recommendations for Survey and Manage Fungi Version 2.0, September 1997. USDA Forest Service.
- Castellano, M.A., E. Cazares, B. Fondrick, & T. Dreisbach. 2003. Handbook to Additional Fungal Species of Special Concern in the Northwest Forest Plan, USDA Forest Service, Pacific Northwest Research Station, PNW-GTR-572. Portland, OR.
- Castellano, M.A., J.E. Smith, T. O'Dell, E. Cazares, & S. Nugent. 1999. Handbook to Strategy 1 Fungal Species in the Northwest Forest Plan, USDA Forest Service, Pacific Northwest Research Station, PNW-GTR-476. Portland, OR.
- Chen, J., Franklin, J.F., & T. Spies. 1992. Vegetation Responses to Edge Environments in Old-Growth Douglas-Fir Forests. Ecological Applications, Vol. 2, No. 4, (Nov., 1992), pp, 387-396.

- Christner, J., R. D. Harr. 1982. Peak streamflows from the transient snow zone, Western Cascades, Oregon. Proceedings of the 50th Western Snow Conference, Colorado State University, Fort Collins, Colorado, pp. 27-38.
- Cline, L. D., R. A. Short, and J. V. Ward. 1982. The influence of highway construction on the macroinvertebrates and epilithic algae of a high mountain stream. Hydrobiologia 96: 149-159.
- Collins, K. M. 1980. Aspects of the biology of the Great Gray Owl, Strix nebulosa. Forester. Winnipeg, Canada: University of Manitoba. 219 p. M.S. Thesis.
- Crabtree, D. M. 2004. Effects of petroleum and various industrial and automotive organic compounds on fishes, with particular reference to salmonid fishes in fresh water and paved parking lot runoff. Umatilla National Forest, Walla Walla, Washington. 15 pp.
- Culp, J. M., S. J. Walde, and R. W. Davies. 1983. Relative importance of substrate particle size and detritus of stream benthic macroinvertebrate microdistribution. Canadian Journal of Fisheries and Aquatic Sciences 40:1568-1574.
- DeWalt, R. E., and J. H. Olive. 1988. Effects of eroding glacial silt on the benthic insects of Silver Creek, Portage County, Ohio. Ohio Journal of Science 88:154-159.
- Dryden, Michael D. 2014a. Determination of Eligibility, Elk Meadows Trail Road 666EA0280. Unpublished Heritage Resource Site Evaluation Report 2014/060606/0002 on file at the Hood River Ranger District, Mt. Hood National Forest.
- Dryden, Michael D. 2014b. Heritage Resources Survey, Twilight and Sunrise Improvements, Mt. Hood Meadows, Hood River Ranger District, Mount Hood National Forest. Unpublished Heritage Resource Compliance Report 2014/060606/0001 on file at the Hood River Ranger District, Mt. Hood National Forest.
- Duncan, J. R. 1987. Movement strategies, mortality, and behavior of radio-marked Great Gray Owls in southeastern Manitoba and northern Minnesota. In: Nero, R.W., R. J. Clark, R. J. Knapton, and H. Hamre eds. Symposium proceedings, Biology and conservation of northern forest owls; 1987 February 3-7; Winnipeg, Manitoba, Canada. Gen. Tech. Rep. RM-142. Fort Collins, Colorado: United States Department of Agriculture, Forest Service, Rocky Mountain Forest and Range Experiment Station: 101-107.
- Duncan, J. R. 1992. Influence of prey abundance and snow cover on Great Gray Owl breeding dispersal. Ph.D. Dissertation, University of Manitoba, Winnipeg, Manitoba, Canada.
- Exeter, R.L., L.L. Norvell, and E. Cazares. Ramaria of the Pacific Northwestern United States. USDI BLM/OR/WA/PT-06/050-1792, Salem, OR. 157 p.
- Fahey, T.J., P.B. Woodbury, J.J. Battles, C.L. Goodale, S.P. Hamburg, and others. 2010. Frontiers of Ecology and the Environment 8(5):245-252.
- Fetz, T., S. W. Janes, and H. Lauchstedt. In press. Habitat selection by Great Gray Owls in the Siskiyou Mountains of southwestern Oregon. J. Raptor Research in press.

- Forsman, E. D. and T. Bryan. 1987. Distribution, abundance, and habitat of Great Gray Owls in southcentral Oregon. Murrelet, 68, 45-49.
- Franklin, J.F. and C.T. Dyrness. 1987. Natural Vegetation of Oregon and Washington. Corvallis: Oregon State University Press.
- Froehlich, H.A., D.E. Aulerich, R.Curtis. 1981. Designing skid trail systems to reduce soil impacts from tractive logging machines. Research Paper 44. Forest Research Lab, School of Forestry, Oregon State University. Corvallis, Oregon. 15pp.
- Google Maps. 2010. "Mt. Hood, Oregon" Map. Google, 24 November 2010. Web. 24 November 2010.
- Goulsen, D. 2003a. Bumblebees: their behaviour and ecology. Oxford University Press, Oxford, England.
- Goulsen, D. 2003b. Conserving wild bees for crop pollination. Food, Agriculture & Environment 1(1): 142-144.
- Graham, Russell T., and others. 1994. Managing Coarse Woody Debris in Forests of the Rocky Mountains. Intermountain Research Station Research Paper INT-RP-477. Ogden, Utah.
- Harr, R. D. 1979. Effects of timber harvest on stream flow in the rain-dominated portion of the Pacific Northwest. In: Process Workshop on Scheduling Timber Harvest for Hydrologic Concerns, Portland, Oregon, November 27-29, 1979. USDA Forest Service, Pacific Northwest Region. Portland, Oregon. 45pp.
- Harr, R. D. 1981. Some characteristics and consequences of snowmelt during rainfall in western Oregon. Journal of Hydrology 53:277-304.
- Harr, R. D., Richard Fredriksen, and Jack S. Rothacher. 1979. Changes in stream flow following timber harvest in southwestern Oregon. Research Paper PNW-249. USDA Forest Service, Pacific Northwest Forest and Range Experiment Station. Portland, Oregon. 22pp.
- Harr, R. D., W. C. Harper, J. T. Kregier, F. S. Hsieh. 1975. Changes in storm hydrographs after road building and clear cutting in the Oregon Coast Range. Water Resource Research 11(3):436-444.
- Heinrich, B. 2004. Bumblebee economics. Harvard University Press, Cambridge, Massachusetts. 245 pp.
- Henderson, J.A. 1974. Composition, distribution, and succession of subalpine meadows in Mount Rainier National Park. Ph.D. dissertation. Oregon State University, Corvallis.
- Henny, C.J., and M.W. Nelson. 1981. Decline and present status of Peregrine Falcons in Oregon. Murrelet 62: 43-53.
- Howes, Steve. 1979. Soil Resource Inventory, Mt. Hood National Forest. Mt. Hood National Forest. Sandy, OR.

- Huff, M., J. Henshaw, and E. Laws. 1996. Great Gray Owl Survey Status and Evaluation of Guidelines for the Northwest Forest Plan. Unpublished Doc. 47pp. USDA Forest Service/Pacific Northwest Research Station.
- Huntington, Del and A. Kiheri. 2012. "Mt. Hood Meadows Traffic Monitoring Report." Kittleson and Associates, Inc. Portland, OR
- Ingerson, A., M. Anderson, 2010: Top Ten Carbon Storing National Forests in America, The Wilderness Society
- Interagency Species Management System (ISMS). 2003. Data and Maps used in the Annual Species Review, Portland, Oregon.
- Jerry Covault and Stephanie Lauer from PBS&J (An Atkins Company) 2010. "Montana Snow-bowl Ski Area Master Development Plan Environmental Impact Statement, Specialist Report Recreation."
- Jones, J. A., Gordon E. Grant. 1996. Peak flow response to clear-cutting and roads in small and large basins, Western Cascades, Oregon. Water Resources Research 32 (4): 959-974.
- Jones, J.J., T.A. Earles, E.A. Fassman, E.E. Herricks, B. Urbonas, J.K. Clary. 2005. Urban stormwater regulations are impervious area limits a good idea? Journal of Environmental Engineering. American Society of Civil Engineers, February 2005.
- Joyce, L.A. 2012. SAP 4.4. Adaptation options for climate-sensitive ecosystems and resources, National Forests. http://www.climatescience.gov/Library/sap/sap4-4/final-report/sap4-4-final-report-Ch3-Forests.pdf.
- Karr, J.R., and Chu, E.W., 1999. Restoring life in running waters: better biological monitoring. Island Press, Washington, D.C.
- Kittleson and Associates, Inc. 2009. "Road Safety Audit (MP 47.0-54.3)."
- Krebs, J., Lofroth, E. C. and Parafitt, I. 2007. Multiscale Habitat Use by Wolverines in British Columbia, Canada. Journal of Wildlife Management 71(7): 2180-2192.
- Kucera, T.E., W.J. Zielinski, and R.H. Barrett. 1995. Current distribution of the American marten, Martes americana, in California. Calif. Fish and Game 81:96-103.
- Lilleskov, E. A. & T. Bruns. 2001. Nitrogen and ectomycorrhizal fungal communities: What We Know, What We Need to Know. New Phytologist (2001) 149: 154-158
- Lillquist, K., and K. Walker, 2006, Historical glacier and climate fluctuations at Mount Hood, Oregon, Arct. Antarct. Alp. Res., 38(3), 399–412, doi:10.1657/1523-0430(2006)38[399:HGA CFA]2.0.CO;2.
- Lippert, J., C. McCain, and A. Smith. 2010. Willamette National Forest Special Habitat Management Guide. Region 6 U.S. Forest Service publication, 44 p.

- Little, R. L., Peterson, D. L., and Conquest, L. L. 1994. Regeneration of subalpine fir (Abies lasio-carpa) following fire: effects of climate and other factors. Can. J. Forest Res. 24: 934.
- Magoun, A.J and J.P. Copeland. 1998. Characteristics of wolverine reproductive den sites. Journal of Wildlife Management 62(4): 1313-1320.
- Mantua, N., G.S. Mauger, 2011: Climate Change Projections for USFS lands in Oregon and Washington, University of Washington Climate Impacts Group
- Marshall, D.V., M.G. Hunter, and A.L. Contreras, Eds. 2003. Birds of Oregon: A General Reference. Oregon State University Press, Corvallis, OR. 768 Pp.
- Marten, S.K. 1994. Feeding ecology of American martens and fishers. Pages 297-315 in Buskirk, S. W., AS. Harestad, M.G. Raphael, and R.A. Powell, eds. Martens, sables, and fishers: biology and conservation. Cornell University Press, Ithaca, N.Y. 484 p.
- May, R., Landa, A., Van Dijk, J., Linnell, J. D. C. and Andersen, R. 2006. Impact of infrastructure on habitat selection of wolverines Gulo gulo. Wildlife Biology 12: 285-295.
- McCain, C. and N. Diaz. 2002. Field guide to the forested plant associations of the westside central Cascades of northwest Oregon. USDA Forest Service, Pacific Northwest Region, Technical Paper R6-NR-ECOL-TP-02-02.
- McClelland, W. T., and M. A. Brusven. 1980. Effects of sedimentation on the behavior and distribution of riffle insects in a laboratory stream. Aquatic Insects 2: 161-169.
- McCune, B. & L. Geiser. 2009. Macrolichens of the Pacific Northwest. 2nd Edition. Corvallis: Oregon State University Press.
- McKenzie, D., Hessl, A. E., and Peterson, D. L. 2001. Recent growth in conifer species of western North America: assessing regional and continental spatial patterns of radial growth trends. Can. J. Forest Res. 31:526. USDA Forest Service, Pacific Northwest Research Station, PNW-GTR-646. Portland, OR.
- Mellen, Kim, Bruce G. Marcot, Janet L. Ohmann, Karen Waddell, Susan A. Livingston, Elizabeth A. Willhite, Bruce B. Hostetler, Catherine Ogden, and Tina Dreisbach. 2003. DecAID, the decayed wood advisor for managing snags, patially dead trees, and down wood for biodiversity in forests of Washington and Oregon. Version 1.10. USDA Forest Service, Pacific Northwest Research Station; USDI Fish and Wildlife Service, Oregon State Office; Portland, Oregon. http://wwwnotes.fs.fed.us:81/pnw/DecAID/DecAID.nsf
- Michael Berry, Abigail R. Kimbell, and Mark Rey, 2007. Service-wide Memorandum of Understanding between National Ski Areas Association and United States Department of Agriculture Forest Service (Forest Service Agreement No. 07-SU-111132424-246). U.S. Department of Agriculture, Forest Service, MOU. 2008.
- Mikkola, H. 1983. Owls of Europe. Buteo Books, Vermillion, South Dakota.

- Moeur, M., T.A. Spies, M. Hemstrom, , J.R. Martin, J. Alegria, J. Browning, J. Cissel, W. B. Cohen, T.E. Demeo, S. Healey, R. Warbington. Northwest Forest Plan: The First Ten Years (1994-2003) Status and Trend of Late-Successional and Old-Growth Forest.
- Mote, P. W., 2003: Trends in snow water equivalent in the Pacific Northwest and their climatic causes. Geophys. Res. Lett., 30, 1601, doi:10.1029/2003GL017258.
- Mote, P.W., A. F. Hamlet, M. P. Clark, and D. L. Lettenmaier, 2005: Declining mountain snowpack in western North America. Bull. Amer. Meteor. Soc., 86, 39–49.
- Mote, P.W., and E.P. Salathé. 2010. Future climate in the Pacific Northwest. Climatic Change 102(1-2): 29-50, doi: 10.1007/s10584-010-9848-z.
- National Resources Inventory System (NRIS) Threatened, Endangered, and Sensitive (TES) Plants database (2011).
- Nero, R. W. 1980. The Great Gray Owl phantom of the northern forest. Smithsonian Inst. Press, Washington, D.C.
- Nolin, A.W. and C.Daly, 2006: Mapping "At Risk" Snow in the Pacific Northwest. Amer.Meteor. Soc., 7, 1164-1171.
- Norvell, L.L. & R. L. Exeter.2009. Phaeocollybia of Pacific Northwest North America. Bureau of Land Management Salem District. ISBN-13: 978-0-9791310-1-1. 228 p.
- Oregon Department of Agriculture Plant Division. 1999. Oregon Weed Control Program, p.5. Salem, Oregon, USA.
- Oregon Department of Environmental Quality. 2001. Western Hood Subbasin Total Maximum Daily Load (TMDL).
- Oregon Department of Transportation. 2003. "Highway Design Manual." Appendix F. 2003.
- Oregon Department of Transportation. 2007. "Oregon Passenger Vehicle Occupancy Rates for Urbanized Highways and City Streets, by Functional Class." 2006 data, issued August 30, 2007 (http://library.state.or.us/repository/2007/200711010921074/index.pdf).
- Oregon Department of Transportation. 2012. "Road Safety Audit (MP 54.2-70.2) DRAFT."
- Oregon Natural Heritage Program. 2005. Scott's Apatanian caddisfly, Allomyia scottia. (Publisher unknown).
- Packer, P.E. 1967. Criteria for designing and locating logging roads to control sediment. Forest Science 13 (1). l8pp.
- Peter, D. 1992. Proposed interim definition for old-growth mountain hemlock. Unpublished document. USDA-Forest Service, Pacific Northwest Research Station, Olympia, WA.

- Peterson, D. W. and Peterson, D. L. 1994. Effects of climate on radial growth of subalpine conifers in the North Cascade Mountains. Can. J. Forest Res. 24: 1921–1932.
- Platt, M. and R. Goggans. 1991. Report on breeding season observations of Great Gray Owls on the Willamette National Forest. Oregon Department of Fish and Wildlife.
- Rashin, E. B., C. J. Clishe, A. T. Loch, J. M Bell. 2006. Effectiveness of Timber Harvest Practices for Controlling Sediment Related Water Quality Impacts. Journal- American Water Resources Association, Vol. 42 (5): 1307-1328
- Reid, L.M., T. Dunne, 1984. Sediment production from road surfaces. Water Resources Research vol. 20:1753-1761.
- Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, CO: 343 pp.
- Rutherford, J. E., and R. J. Mackay. 1986. Patterns of pupal mortality in field populations of Hydropsyche and Cheumatopsyche (Trichoptera, Hydropsychidae). Freshwater Biology 16:337-350.
- Schueler, T.R. 1994. Use of Cluster Development to Protect Watersheds. Watershed Protection Techniques 1(3):13-140.
- Shaver, E., R. Horner, J. Skupien, C. May, and G. Ridley 2007. Fundamentals of Urban Runoff Management: Technical and Institutional Issues (Second Edition). North American Lake Management Society (NALMS), Madison, Wisconsin.
- Simard, S.W. and D.M. Durall. 2004. Mycorrhizal networks: a review of their extent, function, and importance. Can. J. Bot. 82: 1140-1165.
- Simon, T.L. 1980. Ecological study of the marten in the Tahoe National Forest, California. MS thesis, Sacramento State University, Sacramento, CA. 187 p.
- Spellman, F.R. 2008. The science of water: concepts and applications. Taylor & Francis Group, LLC, Boca Raton, FL. 422.
- Stevens, Michelle, and Dale C. Harris. 2000. USDA NRCS Plant Guide: Black Huckleberry. [Web Page]. Located at: http://plants.usda.gov/plantguide/pdf/cs\_vame.pdf. Accessed on: February 2012.
- Thompson, I.D. and AS. Harestad. 1994. Effects of logging on American martens with models for habitat management. Pages 355-367 in Buskirk S.W., AS. Harestad, M.G. Raphael and R.A. Powell, eds. Martens sables, and fishers: biology and conservation. Cornell University Press, Ithaca, N.Y. 484 p.
- Thorp, R.W., D.S.H. Jr. and L.L. Dunning. 1983. Bumblebees and cuckoo bumblebees of California. University of California Press, Berkeley, Los Angeles, London. 3 pp.
- Thorp, R.W., E. Evans and S.H. Black. 2008. Status review of three formerly common species of bumblebee in the subgenus Bombus. 63 pp.

- Tomback, D. F., S. F Arno, R. E. Keane, consulting editors. 2001. Whitebark Pine Communities: Ecology and Restoration. Island Press.
- Trudell, S. & J. Ammirati. 2009. Mushrooms of the Pacific Northwest. Portland, OR: Timber Press. 349 p.
- Tsui, P. T. P., and P. J. McCart. 1981. Effects of stream-crossing by a pipeline on the benthic macroinvertebrate communities of a small mountain stream. Hydrobiologia 79:271-276.
- U.S. Department of Transportation, Federal Highway Administration, 2009. "2009 National Household Travel Survey" Average Vehicle Occupancy by Mode and Purpose Table. (http://nhts.ornl.gov/tables09/FatCat.aspx)
- U.S. Environmental Protection Agency. 2009. Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act. Washington, DC.
- USDA Forest Service & USDI Bureau of Land Management (et. al). July 1993. Forest Ecosystem Management: An Ecological, Economic, and Social Assessment Report of the Forest Ecosystem Management Assessment Team (FEMAT).
- USDA Forest Service & USDI Bureau of Land Management. 1994. Record of Decision for amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl, and Standards and Guidelines for Management of Habitat for Late Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. Portland, OR.
- USDA Forest Service & USDI Bureau of Land Management. 2001. Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measures Standards and Guidelines (January 2001). Portland, OR.
- USDA Forest Service & USDI Bureau of Land Management. 2006a. IM-OR-2006-038 Equivalent Effort Survey Protocol for Survey and Manage Category B Species and Survey Methodology for One Lichen Species with Category Change from the 2003 Annual Species Review: Attachment 1 Survey Protocol Guidance For Conducting Equivalent Effort Surveys, and Attachment 2 Pseudocyphellaria perpetua Supplemental Guidance for Pre-Disturbance Surveys.
- USDA Forest Service & USDI Bureau of Land Management. 2006b. EMS TRANSMISSION BLM-Instruction Memorandum No. OR-2006. Category B Lichens and Bryophytes Where Strategic Surveys are Considered Complete. http://www.blm.gov/or/plans/surveyandmanage/files/02-categoryb\_lichens\_bryophytes.pdf
- USDA Forest Service & USDI Bureau of Land Management. 2007. Conservation Assessment for Fungi Included in Forest Service Regions 5 and 6 Sensitive and BLM California, Oregon and Washington Special Status Species Programs.
- USDA Forest Service & USDI Bureau of Land Management. 2008. Sporocarp Survey Protocol for Macrofungi, Version 1.0. Oregon and Washington.

- USDA Forest Service & USDI Bureau of Land Management. 2011 Settlement Agreement in Litigation over the Survey and Manage Mitigation Measure in Conservation Northwest et al. v. Sherman et al., Case No. 08-1067-JCC (W.D. Wash.). 7/21/2011 EMS TRANSMISSION 07/26/2011 FS-Memorandum BLM-Instruction Memorandum No. OR-2011-063 IM-OR-2011-063
- USDA Forest Service & USDI Bureau of Land Management. 2012a. Interagency Special Status/ Sensitive Species Program (ISSSSP) Species Factsheets for Bryophytes, Lichens, and Fungi. http://www.fs.fed.us/r6/sfpnw/issssp/
- USDA Forest Service & USDI Bureau of Land Management. 2012b. Interagency Special Status/ Sensitive Species Program (ISSSSP) Species Survey Protocols for Bryophytes, Lichens, and Fungi Species Bridgeoporus nobillissimus. http://www.fs.fed.us/r6/sfpnw/issssp/
- USDA Forest Service, et al. 2011. Northwest Forest Plan Temperature TMDL Implementation Strategy: Evaluation of the Northwest Forest Plan Aquatic Conservation Strategy and Associated Tools to Maintain Water Quality Objectives for Stream Temperature. Portland, OR.
- USDA Forest Service. 1974. National Forest Landscape Management Volume 2, Chapter 1 The Visual Management System. Handbook No. 462.
- USDA Forest Service. 1982. Plant Associations and Management Guide for the Pacific Silver Fir Zone. Hemstrom, Miles A., et al. Gen. Technical Paper R6-ECOL-100-1982a. Portland, OR Pacific Northwest Region
- USDA Forest Service. 1984. National Forest Landscape Management Volume 2, Chapter 7 Ski Areas. Handbook No. 617.
- USDA Forest Service. 1988a. Final Environmental Impact Statement. Managing competing and unwanted vegetation. Region 6, Pacific Northwest Region, Portland, OR.
- USDA Forest Service. 1988b. Record of Decision. Managing competing and unwanted vegetation. Region 6, Pacific Northwest Region, Portland, OR.
- USDA Forest Service. 1990a. Final Environmental Impact Statement: Land and Resource Management Plan. Mt. Hood National Forest. Oregon.
- USDA Forest Service. 1990b. Land and Resource Management Plan: Mt. Hood National Forest. As amended. Mt. Hood National Forest. Oregon.
- USDA Forest Service. 1990c. Final Environmental Impact Statement: Mt. Hood Meadows Ski Area. . Hood River Ranger District, Mt. Hood National Forest. Oregon.
- USDA Forest Service. 1993. Forest Service Manual, 2470/2600. Direction on the Use of Nonnative Species for Revegetation Projects.
- USDA Forest Service. 1994. Environmental Assessment for Hood River Meadows Parking Lot and Day Lodge, Mt. Hood National Forest Hood River Ranger District.

- USDA Forest Service. 1995. Forest Service Manual, 2080 Management of Noxious Weeds.
- USDA Forest Service. 1996. East Fork Hood River and Middle Fork Hood River Watershed Analysis. Mt. Hood National Forest Hood River Ranger District
- USDA Forest Service. 1997a. Mt. Hood Meadows Master Plan Record of Decision and Mt. Hood National Forest Plan Amendment No. 10. Appendix A Required Mitigation and Monitoring Vegetation: ROD A-6.3, A-6.9, A-7.6.
- USDA Forest Service. 1997b. Plant Associations and Management Guide for the Mountain Hemlock Zone. McCain, Cindy et al. Gen. Technical Paper R6-MTH-GP-TP-08-95. Portland, OR Pacific Northwest Region
- USDA Forest Service. 1997c. Record of Decision for Mt. Hood Meadows Ski Area Master Plan Final Environmental Impact Statement, including Forest Plan Amendment No. 10. Hood River Ranger District, Mt. Hood National Forest. Oregon.
- USDA Forest Service. 2000. Mt. Ashland Ski Area Expansion, Environmental Impact Statement. Rogue River National Forest, Ashland Ranger District and Klamath National Forest, Scott River Ranger District.
- USDA Forest Service. 2002. Field Guide to the Forested Plant Associations of the Westside Central Cascades of Northwest Oregon. McCain, Cindy and N. Diaz. Gen. Technical Paper R6-NR-ECOL-TP-02-02. Portland, OR Pacific Northwest Region
- USDA Forest Service. 2003a. Chapter 2380- Landscape Management. Forest Service Manual 2300- Recreation, Wilderness, and Related Resource Management.
- USDA Forest Service. 2003b. Roads Analysis, Mt. Hood National Forest. Mt. Hood National Forest. Sandy, OR.
- USDA Forest Service. 2005a. Final Environmental Impact Statement for the Invasive Plant Program, Preventing and Managing Invasive Plants. Region 6, Pacific Northwest Region, Portland, Oregon.
- USDA Forest Service. 2005b. Record of Decision for the Invasive Plant Program, Preventing and Managing Invasive Plants. Region 6, Pacific Northwest Region, Portland, Oregon.
- USDA Forest Service. 2008a. Final Environmental Impact Statement. Site-Specific Invasive Plant Treatments for Mt. Hood National Forest and Columbia River Gorge National Scenic Area in Oregon, including Forest Plan Amendment #16.
- USDA Forest Service. 2008b. Record of Decision. Site-Specific Invasive Plant Treatments for Mt. Hood National Forest and Columbia River Gorge National Scenic Area in Oregon, including Forest Plan Amendment #16.
- USDA Forest Service Pacific Northwest Region. 2008c. Whitebark Pine Restoration Strategy for the Pacific Northwest Region 2009-2013. http://ecoshare.info/projects/whitebark-pine/

- USDA Forest Service. 2009a. Botanical Biological Evaluation for Mount Hood Meadows Ski Resort, East Parking Lot Project. Phil Rickus Ecologist for David Evans and Associat
- USDA Forest Service. 2009b. Climate change considerations in project level NEPA analysis. Washington Office http://www.fs.fed.us/emc/nepa/climate\_change/includes/cc\_nepa\_guidance.pdf
- USDA Forest Service. 2010. National Visitor Use Monitoring Results, National Summary Report, Data collected FY 2005 through FY 2009, Last updated 25 April 2010, Results in this report are compiled from the most recent field data on each National Forest and Grassland nationwide, ranging from FY2005 to FY2009. Stanislaus National Forest, Calaveras Ranger District.
- USDA Forest Service. 2011. Bear Valley Mountain Resort Expansion (7910), Environmental Analysis. Stanislaus National Forest, Calaveras Ranger District.
- USDA Forest Service. 2012. Forest Service National Best Management Practices Program: Non-point Source Pollution Control for Water Quality Management on National Forest System Lands-Technical Guide Volume 1 Draft. Washington, DC.
- Vogt, K.A., J. Bloomfield, J.F. Ammirati, and S.R. Ammirati. 1992. Sporocarp production by basidiomycetes with emphasis on forest ecosystems. Pp. 563-580 in The Fungal Community: Its Organization and Role in the Ecosystem. Eds. G.C. Carroll and D.T. Wicklow. New York: Marcel Dekker Inc.
- Wargo, Philip M. and T.C. Harrington. 1991. Chapter 7 Host Stress and Susceptibility in Armillaria Root Disease. USDA Forest Service, Agriculture Handbook No. 691. Washington, DC.
- Wemple, B.C., Julia A. Jones, Gordon E. Grant. 1996. Channel network extension by logging roads in two basins, Western Cascades, Oregon. Water Resources Bulletin 32 (6):1195-1207.
- Wiggins, G.B. 1973. Contributions to the systematics of the caddisfly family Limnephilidae (Trichoptera). I. Life Sciences Contributions Royal Ontario Museum No. 94. 32 pp.
- Winter, J. 1986. The status, distribution and ecology of the Great Gray Owl and the flammulated owl in California. In: Shaeffer, P. P. and S. M. Ehlers eds. Owls of the west: their ecology and conservation. National Audubon society, Proceeding of a symposium, Tiberon, California.
- Wisseman, R.W. 1997. Benthic invertebrate collection sites; vicinity of the Mt. Hood Meadows Ski area. Summary report for the Mt. Hood National Forest, Aquatic Biology Associates, Inc. 8 pp.
- Xerces Society. 2009. Bumblebees: western bumblebee (Bombus occidentalis). Profile prepared by R. W. Thorp, E. Evans and S. H. Black.
- Zielinski, W.J., R.H. Barrett, and R.L. Truex. 1997. Southern Sierra Nevada fishers and marten study: Progress Report IV. USDA Forest Service, Pacific Southwest Research Station, Redwood Sciences Laboratory, Arcata, CA. 37 p.

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